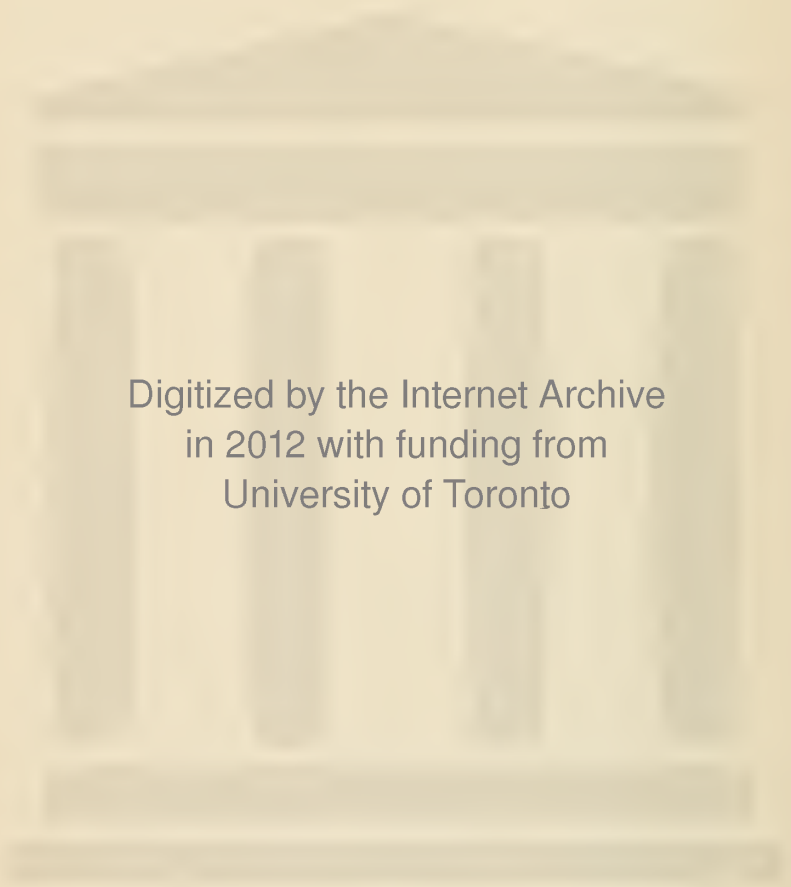

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PRESIDENT'S REPORT

FOR THE YEAR ENDING JUNE 1950

1949/50

President's Report

UNIVERSITY OF TORONTO

PRESIDENT'S REPORT

FOR THE YEAR ENDING JUNE 1950

PRINTED AT THE UNIVERSITY OF TORONTO PRESS
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REPORT OF THE PRESIDENT

To the Governors and the Senate of the University of Toronto:

The University of Toronto Act directs the President to "report annually to the Board and to the Senate upon the progress and efficiency of the academic work of the University and University College, and as to their progress and requirements, and make such recommendations thereon as he deems necessary." In compliance with that duty, I submit my annual Report for the year ended June 30, 1950. Accompanying this Report, and made part of it, are the annual reports of my colleagues who are directly responsible for the administration of University College, the Ontario College of Education, the faculties, schools, institutes, and other divisions of the University. In my Report, I shall deal with significant developments in many of these divisions and I shall review the progress of the University as a whole. It is both desirable and necessary, in order to understand better this review, that you should read the reports of my colleagues.

With a decrease of 1,795 students from 1948-9, the tempo of the University was more conducive to a higher standard of academic work. There were less pressure on and less tension among the staff, academic and administrative, and the student body. As we look back on the year 1947-8 with 17,723 students, we realize more clearly the stupendous task so courageously undertaken and so creditably performed. The untiring labours and the deep devotion of the teaching staff and the high calibre of the students from the armed forces enabled the University of Toronto to serve with distinction over 25 per cent of all the ex-service personnel who registered in Canadian colleges and universities during the post-war period. That has been a proud record.

The composition of the student body is changing rapidly by reason of the reduction in the number of veterans and the increase in the enrolment of young men and young women who come directly to the University from the secondary schools. This change presents new problems, or rather old problems in new forms. We are not discounting the character and competence of the younger generation when we remark that the University never had a student body with such maturity, with such capacity to work hard, and with such aspiration as in the years from 1945 to 1950.

It is tragic that before we completed our work with the veterans of a "hot war" we found ourselves perplexed and worried by the strains and portents of a "cold war." The international scene could be a source of pessimism, frustration, or scepticism for those who are charged with the fulfilment of educational programmes. In many countries, youth are again being regarded primarily as the *potentiel de guerre* and educational processes are designed to train them for the techniques of a mechanized war rather than for the arts of peace. Mr. Archibald MacLeish at the recent inauguration of President Clapp of Wellesley College declared to representative educationalists of the United States:

> And if you believe that you are engaged in such a struggle of competitive terrorization and eventual destruction of civilian populations, with survival, to say nothing of "victory" depending on the reactions of your people to attack, you will not offer young men and young women liberal education. You will offer instead the kind of education some of our more demoralized politicians propose even now for the production of scientists. You will produce not men and women but Cold-War Soldiers, reared in antiseptic ignorance of every doubt or hope or aspiration, indoctrinated rather than instructed, whose neuter and unasking minds, packed with creed instead of questions like so many sawdust dolls, will give to every stimulus the appropriate response. It is not only the bigger bombs and the bigger bombers of the jingo press we need. If we are really engaged in a civilian struggle for survival, our greatest need is for a civilian population disciplined for such a struggle. We need, not colleges and universities, but arsenals of human beings. And we need them now.

Mr. MacLeish hastened to proclaim that colleges and universities in democratic countries must not succumb to that mood. Education assumes the future. Education is always a venture of faith in the future. While democratic nations must maintain adequate military defences, they must never yield to the idea that the fate of our civilization will be determined eventually by the threat of force or by the conflict of arms. If they do, their universities should close their doors and advise their students to go to barracks where they would prepare and equip themselves exclusively for war. We are under the threat of war from the Soviet Bloc. But we are confronted, above all, with the claim that communism holds the greatest good for the greatest number. Universities know that an idea can be conquered only by a better idea, a better idea that can work. It is not sufficient to utter invectives, however justified, against the U.S.S.R. Universities must endeavour to understand the aims of militant communism and to know its methods; then to practise, as well as to preach, that the democratic objectives and methods are superior in terms of human and divine values. Here is a special task for the University of Toronto during these anxious days. Students must be endued with the knowledge that the love and practice of liberty is the surest foundation for a society of decency and order and that, in the service of this idea, they are called upon to form battalions of the free mind and the free spirit.

In my Inaugural Address, given on November 9, 1945, I expressed what was in essence a prayer for the University of Toronto. Five years later I reiterate it with even deeper feeling: "Every degree of this University, in addition to any occupational certification, should signify that its holder has qualifications to study and to help in solving the vital problems of our civilization. It should be the hall-mark of a man or woman who will not be overcome by the 'here and now' and who, in thinking *sub specie aeternitatis,* will throw off the shackles of life's urgencies and walk calmly but resolutely amidst the folly and frenzy of the moment."

Principal Taylor in a recent Convocation address to the members of University College expressed the hope that the students would take long-range views. He stated:

> It will be easy, of course, to revert to cynicism, and give up the task of trying to salvage society, or to accept a fatalistic theory of history. The answer to such counsels of despair is the answer of history itself. This is not the first time that our western civilization has been threatened with extinction or relapse into barbarism. It happened when the Persian military power assaulted Greece; it came again with the attempted conquest of Rome by the Carthaginians. The collapse of the Roman Empire before the invasion of the Teutonic hosts seemed to be the end of the course of the ages, just as three hundred years later the sweep of the sword of Islam threatened the whole structure of Christendom. But in each instance the danger was overcome and after each crisis what we understand as culture became more dominant and widespread than before. Each time of peril turned out to be a key that opened a door to a better world. There is, it seems, only one thing that destroys a culture, and that thing is loss of nerve. Cynicism and fatalism are manifestations of loss of nerve.

Universities have unique opportunities as they work with selected youth—the fresh reserves—who supply new faith and hope to a tired and torn world. Plato declared that the true philosophers are the youth of every age. "Not," as someone has added, "because they do it very well; but because they rush upon ideas with their whole soul. Later one philosophizes for praise or for apology or because it is a complicated game."

It is relevant to an annual Report to observe that while we keep our powder dry we should endeavour to re-assess the University's role amidst the folly and the frenzy of the "here-and-now." From knowledge and through wisdom rooted in an appreciation of spiritual values there must come the brighter day, despite the lamentation of the writer of Ecclesiastes: "In much wisdom is much grief: and he that increaseth knowledge increaseth sorrow."

I return to my phrase "rooted in an appreciation of spiritual values." A provincial university cannot be exclusively integrated with or related to any one religious denomination. Yet it need not be "godless." A state university should be an ally

of all religious denominations who preach and practise that the finest resources for creative living are to be found in a belief that there are ideals outside, beyond, and above the individual—ideals that rest upon a personal faith in God. The understanding, as well as the maintenance, of Western culture and its democratic institutions depend upon the transmission of the Judaeo-Christian tradition, strengthened by the wisdom of the classical period from both of which we derive the vitality of our civilization. That tradition should be communicated with thoroughness of scholarship and maturity of approach. The University should not produce adults in, for example, physics or psychology, who are children in ethics and religion.

I have been discussing the opportunities for educational institutions in this vexed period for democracies. While we profess our faith in the role of universities, we must bear in mind the Jeffersonian principle: "I look to the diffusion of light and education as the resources most to be relied on for ameliorating the condition, promoting the virtue and advancing the happiness of man. The basis of our Government being the opinion of the people, the very first object should be to keep that opinion right. If a nation expects to be ignorant and free in a state of civilization, it expects what never was and what never will be." Thomas Jefferson proclaimed for his young nation and for all democracies the equality of opportunity. But he never asserted that all young persons are equally equipped for study in elementary and secondary schools and in colleges and universities. It is not academic snobbishness to assert that many young persons have neither the talent nor the desire for advanced study. There are, however, for them opportunities for service that warrant high recognition and warm acclaim. We need a parity of esteem for all who work, whether it be at the desk, in the forum, in the factory, in the mine, in the forest, or on the sea. It is desirable, however, that parents shall realize that the possession by their children of a university degree is not the only open sesame to useful and distinguished careers.

Educational institutions such as the University of Toronto must always be concerned about the malady known as "academic elephantiasis." The dinosaur died out by the operation of "a process in which demands of sheer bulk competed with the surface available for respiration." A similar fate might overtake universities that count their students in tens of thousands. Never a session goes by without pressure from some quarter for new courses, new schools, or new faculties. When the proposals are examined, it frequently becomes obvious that the University is being petitioned to offer courses on the technology of some particular vocation rather than on the fundamental principles which transcend many occupational boundaries. There are techniques which can best be learned "on the job" and which indeed cannot be adequately taught in universities. Universities cannot have everything or even something for everybody and remain institutions of higher learning with all that the term connotes.

Canadian universities have, and they will have, professional schools. There are those who deplore intermittently the presence in the modern university of any professional school and there are a few who would, if they could, dissociate the universities from their professional schools. Those who advocate this policy often refer to the pure and undiluted stream of learning and scholarship that was to be found in the medieval universities. Students who attended those institutions were concerned about their preparation for a calling, occupation, or vocation. In fact, preparation for the learned professions was the origin of universities. They began in Europe when schools of law, of medicine, and of theology came together to form universities. On the North American continent, colleges were established under the aegis of religious denominations, and their main purpose was the training of recruits for the ranks of their clergy.

There is, however, a note of warning in the observations of those who would turn back the academic clock, and it is a warning that should be heeded. The ever increasing list of professional schools in many universities should be regarded as a

danger signal. As our urban society becomes more complex, there is a corresponding variety of special callings. The members of these vocations, with a yearning for social prestige that only universities afford and with an ambition to obtain professional certification and status, are anxious for recognition by the universities. The demand in Canada is greater by reason of our proximity to the United States, where some universities are offering courses that should be given only in technical institutes or by other agencies. The following is not too simple a formula to propose when consideration is being given to offering a new professional subject or to the establishment of a new professional school: Will the subject or will the course be related to the validation and discovery of fundamental principles or will it be merely an application of principles in terms of learning techniques or the "know-how"? The "know-why" must be the primary and dominant concern of universities. In Canadian universities the offering of new occupational courses and the manufacturing of new degrees to fit them should be a matter of deep concern, if not serious alarm. The extent of occupational certification by universities has already discounted the academic currency of this country.

Another even more serious aspect of this problem is that the establishment of these new courses drains away the meagre financial resources that are so sorely needed for the support of faculties of arts. Moreover, the demand for more technological courses has been felt even in faculties of arts where it is diluting their offerings. It cannot be gainsaid that some of the courses in some faculties of arts offer little more than occupational training in which techniques rather than basic principles are learned. It is trite, but nevertheless valid, to observe that faculties of arts are the very hubs of our universities. One may have a strong university although there are within it weak professional schools. On the other hand, if a faculty of arts is weak, low standards for the whole university inevitably follow.

Many professional schools are concerned with the physical and biological sciences. They may easily fail to afford their students the opportunity to learn anything beyond the scope of those sciences. Their students may know little, if anything, of the law of men while they are well versed in the law of things. It is encouraging that some professional schools, in recent decades, have had a desire—not always to be found in some departments of some faculties of arts—that their students should know our cultural heritage. As a consequence, degrees in Arts or at least two years in Arts are required for admission to many professional schools. Undoubtedly, this policy has enlarged the horizon of the professional graduate. Unfortunately, however, many adolescents looking forward to professional courses regard their work in the faculty of arts as a hurdle to be jumped as quickly as possible rather than as an opportunity for laying foundations that will increase their professional proficiency as well as equip them for leadership in modern society. A thorough understanding of certain subjects in the humanities and social sciences can only be gained after the student has attained a maturity of mind not always to be found in the age-group of those registered in the first two years of our faculties of arts. It is my growing conviction that in order to liberalize professional training cultural subjects should be offered not only before but during the professional work.

It is sometimes hinted that teachers in our professional faculties are lacking in culture. In reply to this soft impeachment, many of their old students could testify that some of the most inspiring and liberalizing courses they took were given by teachers in the professional schools and that some of the most arid instruction was given by teachers in so-called cultural fields. Nevertheless, it must be kept in mind that it is the main objective of the teacher in the professional school to prepare his students for the practice of a profession, and that he is not, by the very nature of this task, equipped to discharge those responsibilities that belong properly to his colleagues in the faculty of arts. I read recently a communication from one of our Canadian universities in which it was stated that teachers in professional schools are best qualified to know, for example, what kind of English their students should

learn. The exact text of that statement is as follows: "In concrete terms, what I mean by this is that the teaching of English to, for example, engineers, as an exercise in English composition seems to me unprofitable. Most well-trained engineering professors are at present adequately competent, and should progressively become more competent, to instruct students in the adequate expression of engineering subjects and also to do something within the engineering training to relate engineering to its human and social context." Perhaps such an attitude has been in large measure responsible for such descriptions as Medical English, Engineering English, Dental English, and Pharmaceutical English! Professional faculties need the interest and assistance of arts professors in order that their students may apprehend the cultural heritage that is ours and seek to adapt it to the solution of problems that vex our civilization. It is, I believe, an undesirable expedient to have a busy member of the staff of a professional faculty teach English Literature. An experienced teacher in Mechanical Engineering would justifiably object to the teaching of Mechanics by a professor of English. By the same token, surely a man who has devoted his whole life to the study of English is best qualified to reveal to students of any faculty the wealth and the beauty of our literature. While professional schools in the main prepare their students for their occupations, professors in the humanities and the social sciences can assist in preparing them against their occupations. The humanities and the social sciences should not be regarded in any way as "service courses" in professional schools. They must be considered as integrated parts of the curricula.

There is another academic problem, to which I referred in my annual Report for 1948-9 and which, in considerable measure, is peculiar to professional faculties. In the faithful endeavour to combine theory and practice, professional faculties frequently provide a treadmill of formal instruction that does not develop in their students the capacity to think by and for themselves, and in so doing to exercise self-reliance, to strengthen the talent for independent judgment, and to correlate their various studies. A cursory examination of time-tables of faculties of medicine, applied science and engineering, architecture, dentistry, and forestry in Canadian universities would demonstrate that their students, throughout every week during the session, have very few spare periods when they can assimilate and correlate the mass of information that is being placed before them. Whitehead wisely remarked that students must not be taught more than they can think about. A yard filled with lumber is of little benefit to a man who cannot shape and use the wood. Every professional faculty desires that its graduates will be something more than expert technicians. Do our students in professional faculties have the opportunity to relate the work taken under one department to the field of another department, to say nothing of the opportunity that they have to cross, on their own initiative, faculty boundaries? It is frequently true that the keener and the more erudite a professor is in his own specialty, the more probable it is that he will constantly seek to obtain more hours for instruction in his subjects. The division and sub-division of many of our subject areas has brought about time-tables so overloaded that there may be a premium on memory, and the qualities of self-starting and self-motivating may not be adequately developed. I again suggest that the faculties of many of our professional schools should make a conscious effort to reduce the load of formal instruction. The question may be asked what courses should be shortened or eliminated. The answer can only be given by experts, yet it is my view that in some departments instruction is given in matters that can best be learned on the job after graduation or can be better digested and better understood in post-graduate work.

As I have already remarked, the establishment of new professional schools drains away from departments of the faculties of arts financial support of which they have a dire need. Professional schools of medicine, dentistry, nursing, engineering, architecture, are expensive to operate. Because of public opinion in Canada, financial

support for those faculties can be obtained from governmental, industrial, and commercial sources that could never be tapped to such an extent, if at all, for work in the humanities and social sciences. The public knows of the contribution of those faculties to the welfare and progress of Canada in peace and in defence of the nation in war. Their exploits and their discoveries frequently appear in the headlines of the press. They warrant the financial support given them and they need larger grants. I am not opposing their further development when I observe that we should never permit their power to attract increased financial support to throw out of balance the whole programme of universities. In any appeals on behalf of universities for more generous grants the easy path should not be taken and money should not be accepted for the professional schools to the exclusion of faculties of arts. If such a policy were to be followed, the universities of Canada would cease to fulfil their high purpose and the professional schools themselves would be weakened.

The establishment of technical schools would serve to equip young persons who do not desire, or who are not qualified, to undertake further study of fundamental principles. Technical schools would relieve the pressure on universities. For the offering of a general education beyond the secondary school the setting up of junior colleges strategically located throughout the province should be seriously considered. Those colleges could offer some training in special skills, not available in a local technical school, that would enable their pupils to play a productive role in society. Above all, those institutions could provide the opportunity for the study of English and other languages, of history, geography, and other subjects covered by the term "social studies," that would make for a more effective citizenship. Within the offerings of a junior college there could be, either as a core or as options, subjects that would qualify some pupils for entrance to certain courses within universities.

It is not a kindness to admit to our universities young men and young women who have not the peculiar talent for further formal study at an advanced stage. It is costly for themselves and for their parents. A precious year may be lost, and what is more serious, they leave, by request or voluntarily, with a sense of frustration and even defeat that may frequently affect their resolution and ambition to take up some other work for which they are better fitted.

In my Report for 1948-9, I referred to the number of those who fail or who are unable to complete their courses. The Faculty of Applied Science and Engineering has conducted a survey and has found there were graduated only 66 per cent of those who registered in 1929 in that Faculty for first-year work, only 60 per cent of the entering class of 1931, and only 65 per cent of the entering classes of 1933 and 1935.

I draw your attention to the tabulation of the results of the annual examinations of 1949-50 that accompanies this Report. You will observe that 13 per cent of the first year in the honour courses of the Faculty of Arts were transferred to the Pass Course and 9 per cent failed outright; that 15 per cent of the first year in the Pass Course failed; that 7 per cent of the first year in the Faculty of Medicine failed; that 26 per cent of the first year in Applied Science and Engineering failed; and that 30 per cent of the first year in Dentistry failed. These statistics raise many questions. Are the entrance procedures sufficiently selective? Could more be done in the way of advising and counselling the students who find in the University new and strange surroundings, practices, and policies? It must be always kept in mind that many students leave the University on account of family responsibilities, health, or a change of vocational purpose. In some cases, inability to do satisfactory work according to well-tried methods and established standards or lack of motivation may be remediable defects. The role of a university teacher must be to enable students to learn and to think, rather than to pack them with information. Listless listeners to lectures can be changed to eager and resourceful learners. The foregoing figures in any event demonstrate that without a process of wise selectivity, in which every effort is made to ascertain a student's capacity for advanced study,

the output of a university cannot be doubled by merely taking in twice as many students.

A criticism commonly levelled against universities is that their departments in the humanities and to a lesser extent their departments in the social sciences insulate themselves from the immediate scene. The members of the staffs of those departments, it is alleged, are concerned almost exclusively with the past and their findings have only the most tenuous relationship to the problems that confront us today. A criticism such as this need not arouse much soul-searching among our humanists and social scientists, for it betrays a glib and shallow conception of the nature and purpose of scholarship that searches in the past not for dead material but for living tissues that are needed for the present and the future. There is, however, another criticism that scholars in Canadian universities should be quick to answer. It is this. The humanities especially, it is argued, concentrate on the culture of older and more mature countries and ignore, if they do not scorn, the culture of Canada. If this were true, it would be a serious charge. But it can be shown, nowhere more clearly than in the work of the University of Toronto, that such a charge is without foundation. Members of the staffs of the various disciplines in the humanities and social sciences, through their activities, their lectures, and their writing, have added in no small measure to the intellectual resources of Canada. They have written books that stand not merely as works of scholarship, but that belong in the forefront of Canadian literature. Some time ago, the Arts and Letters Section of UNESCO asked for a list of Canadian books of special merit. In the list drawn up by the Canadian Committee, the great majority of the books in History, Political Science, and Literary Criticism (and not a few in the field of so-called creative writing) were written by men who are, or who have been, members of the staff of the University of Toronto. If one were looking for specific evidence of this University's concern for what is happening in the intellectual life of Canada, one could find it most obviously perhaps in the annual survey of "Letters in Canada" that for fourteen years has appeared in the *University of Toronto Quarterly*. Here you will find what many outside observers have described as the most comprehensive and most impartial survey of our cultural life, the result of a co-operative effort of a group of scholars drawn from various fields and from a number of universities. Achievement qualifies an individual or an institution to judge the attainment of others. The University of Toronto neither seeks nor will adopt notoriety for its intrinsic labours in this regard—labours that must be intensified for the service and leadership that Canada needs and expects.

The University of Toronto is, of course, a provincial university. For various reasons, however—among them its relative seniority among Canadian universities and its central geographical location—it has become an institution of national as well as of provincial significance. Statistics alone, even if they could always be compiled, would not adequately convey the full significance of this statement, but it is perhaps possible to analyse the idea of a national university and to draw out the implications contained therein. I suggest that there are three main criteria by which we might estimate the national services that a university gives. By each of these criteria I think it is evident that the University of Toronto is in every sense of the word a national university.

The first criterion is the extent to which the university serves students, both graduates and undergraduates, from all parts of the Dominion. In 1949-50, there were 1,619 students who came from outside the province of Ontario. These made up only approximately one-ninth of the total enrolment, it is true, but at the same time this number is sufficiently large to equal the normal student enrolment at an average-sized college or university in Canada or the United States. If we turn to the School of Graduate Studies, we find the percentage of students coming from outside of Ontario is much larger. In 1949-50, there were 429 students in this category, making up approximately one-third of the total enrolment. There were

registered in the University during the year students from 61 countries of the world who were graduates of over 120 colleges and universities.

The second criterion is the extent to which the graduates of a university may be found in all parts of Canada and in various professional activities. Alumni records tell of the wide dispersion of the University of Toronto graduates. The tendency to continue professional training beyond the undergraduate level in professional and graduate schools will make the University of Toronto increasingly the centre to which students and professional workers from other provinces will come for further training. It is one of the few Canadian universities that has an almost complete roster of all the professional schools—Architecture, Dentistry, Engineering, Forestry, Household Science, Hygiene, Law, Library, Medicine, Music, Nursing, Pedagogy, and Social Work. Some idea of the relative contribution made by a representative professional school at the University of Toronto is given in the enrolment figures in the Faculty of Dentistry for 1949-50. During that year, 478 of the 1,034 students enrolled in the faculties of dentistry in all of Canada were taking their work at the University of Toronto.

The third, and a very important, criterion is the contribution that a university makes in the realm of research. This permeates all aspects of the national life of Canada, commercial, industrial, governmental, social, and cultural. Research flourishes best when a university has a well-developed school of graduate studies. This is true of the University of Toronto, which offers graduate work up to the doctorate level in virtually every department and thus has become the centre for advanced study in Canada. By means of special research funds and by a policy of relieving senior members of the staff of some of the burden of undergraduate instruction, the University has been able to work out a long-range programme of research. In this Report some 70 pages are required to give only a bare, factual record of the researches and the publications resulting from this work undertaken during the academic year. The description of an individual research project may convey to the layman little except an impression of dry technicality, but it is from an accumulation of such endeavours that finally emerge the theories and techniques that transform society.

The task and the responsibility of the University, in terms of quality, are boundless. That statement eradicates complacency, engenders humility, whets aspiration, and demands courage. Certainly it demands high courage to meet a situation where the costs of services and goods are increasing while, at the same time, the proportion of national income devoted to the promotion of higher education is decreasing.

ATTENDANCE

The total number of students enrolled was 14,840 of whom 11,065 were men (last year 12,571) and 3,775 women (last year 4,064). The number of students proceeding to degrees was 4,572 and to diplomas 457. Of the students in attendance, 7,754 came from Toronto, and 5,527 from other parts of the province of Ontario. University enrolment in Canada increased from its war and pre-war level of less than 40,000 to more than 85,000 for the academic year of 1947-8. In 1948-9 the Canadian total was approximately 70,000. The trends in registration for this institution are in line with those of the national scene. In 1947-8 there were registered in the University of Toronto 8,392 ex-service personnel, in 1948-9 6,775 and in 1949-50 4,483. There were enrolled during 1949-50 in courses conducted by the Department of Extension 10,016 persons and in courses offered by the Royal Conservatory of Music 7,923 pupils. In total, the University served directly during the year under review 32,779 persons.

THE STAFF

Earlier in this Report, I emphasized the outstanding contributions of the staff during the arduous years of the post-war period. Repetition could never obscure

the validity or dull the pointedness of that observation. In my Report for 1948-9 I referred to the rapidly increasing cost of living and the correlative difficulty of making ends meet for salaried persons, of whom members of academic staffs are conspicuous examples. It is a happy portent for the University that the Board of Governors is now studying carefully that problem. In recent years the University has lost very few senior members of the staff to industry and American universities, whence comes the competition for the services of outstanding men and women. It is a source of encouragement to report that during the past three years nineteen senior members of the staff have been offered positions ranging from headships to a presidency in other universities and in research organizations and only five have resigned to take positions elsewhere. Yet the loyalty of this group cannot be pushed much further. The most disturbing feature of the present situation in respect of the teaching and research staff is that the University is not attracting and is not retaining first-class junior members, who, for understandable reasons, are accepting offers for interesting work which assure remuneration in keeping with the peak prices for housing, clothing, food, books, travel, and recreation. The calibre of the University of 1960 and 1965 depends essentially on the calibre of the recruits for the academic ranks during this period.

The levels of income of members of the academic staff create problems that with a less tolerant group would seem insoluble. One arises out of the system of free enterprise, under which the law of supply and demand regulates not only the prices of commodities but also the compensation for services. Industry and governmental agencies are not clamouring to employ, for example, classical scholars. They are bidding for the products of our professional schools. Consequently, it is frequently more difficult to attract first-class teachers and investigators to the staffs of those faculties at the salary scales that prevail in our universities than it is to some departments of the Faculty of Arts. The problem may be described in this manner: should we have a double standard in our universities? The ideal answer would be "no," but if we cannot obtain the financial support necessary to pay relatively the same salaries throughout the whole university, we must accept the situation dictated by the principle of supply and demand and pay higher salaries in some of the professional schools. I have nothing but admiration for professors in faculties of arts for their recognition of this situation—a recognition that is not tinctured with jealousy.

There is, moreover, the fact that members of the staffs of professional faculties are able to use their long vacations for the purpose of supplementing their income in a way that is not open to most professors in the faculties of arts. It is an accepted view that it is desirable for a teacher in a professional school to keep in touch with practice and to seek the opportunity from time to time of acquainting himself with some of the difficulties which will confront his students after they leave his classroom or laboratory. During the regular session, members of professional faculties are also solicited by industry for consultation and advice. That I believe is, if controlled, desirable. To what extent should a professor in a professional school accept employment outside the university during the session? Should he devote every summer to remunerative work in the field? I am expressing, I am certain, the views of teachers in professional schools in Canadian universities when I declare that when a man's external interests become more important and significant to him than his teaching and research in the university, then he should relinquish his academic post. Is there any ready-made yardstick in that regard? Some American professional schools, by providing an all-inclusive salary, have sought to give an opportunity for the members of their teaching staffs to keep abreast of the practice in their respective fields and yet not be subjected to the temptation of seeking work merely for increased income. To that there is a corollary that any consulting fees and honoraria should be paid to the employer-institution. If it were financially possible for Canadian universities to raise salaries for members of the professional schools to bring about this situation, I ask the question whether it would be wise

to adopt such a policy under which nigh every activity of a staff member, apart from his social life, is circumscribed by his contract of employment.

In order to estimate adequately, for any period longer than a year, expenditures for academic salaries, amounting at the present time to 51 per cent of the total expenses for the University, it is my opinion that there should be established a ratio of the number of full professors, associate professors, assistant professors, and lecturers in a total staff of a certain size. That ratio should be flexible to meet exceptional circumstances.

It has been necessary from time to time to appoint men to be paid a salary at or above the "floor" for the rank of assistant professor, notwithstanding that they have no, or little, full-time teaching experience. An appointment to an assistant professorship in the University of Toronto has been considered as "permanent." It is my conviction that it is not desirable to give "permanent" rank unless or until the appointee has demonstrated his capacity and fitness for university teaching. In such a case, it would be prudent for the University to appoint the man to an assistant professorship for a fixed period of years in which he could prove himself.

The system of exchanging professors for brief visits with other Canadian and American universities has been again a boon. The School of Graduate Studies has enhanced to an immeasurable degree the academic work of the session by inviting for periods varying in length from two or three days to three months outstanding leaders in many fields. I refer you to the list of these visitors as set forth in the report of Dean Innis of the School of Graduate Studies.

It is pleasant to acknowledge the contributions that members of the Univeristy are making to its immediate constituency, to the province, and to the nation at large. By serving on commissions, acting as consultants, giving addresses to many organizations, and in other innumerable ways, those colleagues have extended the influence and enhanced the prestige of the institution. Many of these activities are never known except to a particular group and few of them are signalized in headlines, yet this essential work of the University goes steadily forward. To many of those "academics anonymous" the University expresses its appreciation of their unselfish efforts to make it a powerful and constructive agency in many diverse fields. A list of addresses and papers given by members of the staff is, hereunder, set forth:

J. L. Baillie on "Canada's First Ornithologist" at the American Ornithologists' Union's annual meeting at Buffalo.

Professor C. T. Bissell on "Social Analysis in the Novels of George Eliot" at the University of Western Ontario.

Professor A. Brady on "The British Commonwealth" at the American Political Science Association's annual meeting at New York City.

Professor H. M. Cassidy, the opening address in a series of lectures on social security sponsored by the Milwaukee Extension Division of the University of Wisconsin.

Professor P. M. Corbett on "Methods of Affecting the Fired Colours of Southern Ontario Brick Clays" and "Determination of Glaze Fit on Whiteware Bodies over a Temperature Range" at the Canadian Ceramic Society's annual convention at Niagara Falls.

Professor J. A. Davison on "The Date of the Prometheia" at the American Philological Association's annual meeting in Baltimore.

Professor R. Dawson on "The Amateur Cabinet Minister" at Carleton College, Ottawa.

Professor C. W. Dunn on "Gaelic Songs of Emigration" at the American Folklore Society's annual meeting at Washington, D.C.

Dean R. G. Ellis on "The Child in Your Practice Today and Tomorrow" at the first Maritime Dental Convention at St. Andrew's, New Brunswick.

Professor Barker Fairley, two lectures at the Goethe convocation at Aspen, Colorado.

Dr. C. B. Farrar on "Suicide" at the Neuropsychiatric Seminar at Orangeburg, South Carolina; on "Use and Abuse of Words" at the Southern Psychiatric Association's annual meeting at New Orleans.

Miss Helen E. Fernald on "Shades of a Lost Han Painting" at the meetings of the American Oriental Society and of the Far Eastern Association at New Haven, Connecticut.

Professor Emilio Goggio on "The Element of Originality in the *Commedie Erudite* of the XVIth Century" at a meeting of the Modern Languages Association of America at Stanford University, Palo Alta, California.

Dr. D. N. Henderson on "Ectopic Gestation" at a meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at Hot Springs, Virginia.

Dr. Helen S. Hogg, at the opening session of the annual meeting of the American Association of Variable Star Observers at Harvard University.

C. E. Hope on "The Expedition to Cape Henrietta Maria, Ontario" at the American Ornithologists' Union's annual meeting at Buffalo.

Professor J. A. Irving on "The Function of an Annual Conference on the Teaching of Philosophy" at the Conference on the Teaching of Philosophy at Western Reserve University, Cleveland, Ohio.

Professor H. S. Jackson on "New Records of Thelephoraceae for North America" at the Mycological Society of America's meeting at New York City.

B. H. MacNeill on "Studies in *Septoria lycopersici* Speg" at the American Phytopathological Society's meeting at New York City.

Dr. Geraldine Maloney on "The Value of Vaginal Cytology in Observing Progress under Radiation Treatment of Patients Suffering from Cancer of the Cervix"; Dr. D. E. Cannel on "The Management of the Occiput Posterior: The Use of the Bill Scanzoni Manoeuvre"; Dr. M. C. Watson on "Gynaecological Endocrinology"; all at the meeting of the Society of Obstetricians and Gynaecologists of Canada at Jasper, Alberta.

Dr. J. R. McArthur on "Carcinoma of the Endometrium" at a meeting of the Royal College of Surgeons of Canada at Toronto.

Professor John Satterly on "Geophysical Researches in Canada" at the annual meeting of the British Association for the Advancement of Science at Newcastle-upon-Tyne (as a delegate of the Royal Society of Canada).

Professor D. Savan on "Origins of Peirce's Phenomenology" at the Peirce Society's annual meeting at Columbia University, New York City.

Professor George Sinclair on "The Transmission and Reception of Elliptically Polarized Waves" at the fall meeting of the United Radio Scientific International at Washington, D.C.

Dean J. W. B. Sisam on "Forestry and Forest Products Research" at the Canadian Lumbermen's Association's annual convention at Montreal.

Dr. Joseph Sullivan on "The Surgery of Deafness" at the International Congress of Otolaryngology at London, England.

Professor M. D. C. Tait on "Spirit, Gentleness and the Philosophic Nature" at the annual meeting of the American Philological Association at Baltimore.

Professor Griffith Taylor, fifteen lectures on geographical research during April and May at the invitation of the British Council and the University of Birmingham, at the following universities: Birmingham, Leeds, Cambridge, Edinburgh, and Aberdeen.

Dr. H. B. Van Wyck on "Changing Trends in the Treatment of Ante-Partum Hemorrhage" at the inaugural meeting of the Interurban Obstetrical and Gynecological Society at Rochester, New York.

Professor B. Wilkinson on "Political Trials, 1308-1340, Especially in Relation to Parliament" at the American Historical Association's annual meeting at Boston, Massachusetts.

Professor R. E. Williamson on "The Opacity of the Galaxy for Radio-Frequency Radiation"; G. F. D. Duff and Professor R. E. Williamson on "Broken Line Guillotine Factor Models for Late-Type Main Sequence Stars"; Donald K. Norris and Professor Frank S. Hogg on "A Search for Meteoritic Matter in Atmospheric Dust"; Dr. Helen S. Hogg on "The Variable Stars in Messier 28"; W. R. Hossack and Professor Frank S. Hogg on "White Dwarfs and Short Period Light Variations"; all at the American Astronomical Society's meeting at Ottawa.

Professor R. E. Williamson on "Radio Astronomy" at the Cleveland Astronomical Society's meeting, and a seminar on the same subject at the Yerkes Observatory, University of Chicago.

During the past year death has taken Dr. T. Cowling, who, both as administrator and as teacher, served the Faculty of Dentistry faithfully and well; Professor Emeritus H. W. Price, who at the time of his retirement was Head of the Department of Electrical Engineering, and whose beneficent influence will continue to be felt among graduates of the Faculty of Applied Science and Engineering; Professor A. R. Zimmer, devoted teacher, friend, and counsellor of colleagues and students in all faculties; Professor G. R. Edwards, loyal servant for many years of his department and of his faculty.

The list of retirements includes names that have been long associated with the work of the University. Professor J. E. Toomer has been a faithful teacher. Professor W. H. Clawson was at the time of his retirement the senior member in years of service of the Department of English, and he can look back upon a long and

fruitful career as a teacher and scholar. Professor Robinson has been a stalwart member of the Department of Pathology who personified the cordial relations that exist between the Faculty of Medicine and the Toronto General Hospital. The retirement of Professor J. R. Cockburn reminds us of the growth and development of the Faculty of Applied Science and Engineering with which he was so closely associated. Throughout his long service he has embodied the best traditions in Canadian engineering education. Professor J. Satterly, a gifted teacher and researcher, has been an exponent of that happy, robust individualism on which a university is nourished. In Professor H. Willan and Professor L. Smith the Faculty of Music loses the services of two men who have contributed immeasurably to the development of a strong, diversified programme of musical studies; it is a source of deep satisfaction to know that they will continue to be forces in the musical life of the community and indeed of the nation. Professor H. B. Van Wyck, an acknowledged leader in his field, has been an inspiration to generations of medical students; no one has demonstrated more forcibly than he how the highest professional excellence can be united with a deep and richly humane culture. Although at this time my remarks about retiring members of the faculty strike a retrospective note, it is important to remember that retirement in no sense signalizes the end of a career. Some of the finest scholarly work has been done in the years following the relinquishment of active teaching duties. All of these men continue to be our associates and co-workers in the University community.

Honours

Professor C. L. Ash, elected a Fellow of the American Radium Society and a member of the Faculty of Radiologists of London, England.

Miss H. A. Bennett, awarded a W. K. Kellogg Foundation Fellowship.

Professor C. H. Best, elected Honorary President of the International Bureau of Associations for the Protection of the Interests of Diabetics; elected a Fellow of the American Association for the Advancement of Science; awarded the Flavelle Medal of the Royal Society of Canada; received the degree of Doctor of Laws (*honoris causa*) from Queen's University.

Professor E. A. Bott, elected Honorary President of the Canadian Psychological Association.

Professor E. H. Botterell, elected President of the American Academy of Neurosurgeons.

Professor H. M. Cassidy, appointed United Nations Adviser on Social Welfare to the Government of Egypt.

Professor P. A. Child, awarded the Governor-General's Medal for fiction.

Professor H. S. M. Coxeter, elected a Fellow of the Royal Society of London.

Professor D. G. Creighton, received the degree of Doctor of Laws (*honoris causa*) from the University of New Brunswick.

Professor R. M. Dawson, received the degree of Doctor of Laws (*honoris causa*) from the University of New Brunswick; awarded the Governor-General's Medal for academic non-fiction; awarded a John Simon Guggenheim Memorial Fellowship.

Professor B. Fairley, received the degree of Doctor of Letters (*honoris causa*) from the University of Leeds.

Professor R. F. Farquharson, elected a Fellow of the Royal College of Physicians of London, England; received the degree of Doctor of Science (*honoris causa*) from the University of British Columbia.

Professor W. R. Franks, received the Theodore C. Lyster Award of the American Aero Medical Association.

Professor K. G. Gray, elected a Fellow of the American Psychiatric Association; appointed Chairman of Ontario Special Commitee on Mental Facilities and Services.

Professor W. S. Hartroft, awarded the prize for research of the Royal College of Physicians of Canada.

Professor C. E. Hendry, awarded a United Nations Fellowship.

Dr. H. S. Hogg, awarded the triennial Annie J. Cannon Prize in Astronomy of the American Astronomical Society.

Professor H. L. Humphreys, elected President of the Ontario Modern Language Teachers' Association.

Professor H. A. Innis, appointed a member of the Royal Commission on Transportation.

Professor R. M. Janes, delivered the Mitchell Lecture, Belfast, and the MacArthur Lecture, Edinburgh.

Professor J. D. Ketchum, elected President of the Canadian Psychological Association.

Professor W. Line, elected President of the World Federation for Mental Health under the World Health Organization of the United Nations.
Professor E. A. Linell, elected President of the Academy of Medicine of Toronto.
Dr. R. P. Lowery, elected President of the Canadian Dental Association.
Dr. S. A. MacGregor, elected a Fellow of the International College of Dentists.
Professor T. F. McIlwraith, elected Chairman of the Canadian Social Science Research Council.
Professor K. G. McKenzie, elected President of the American Society of Neurological Surgeons.
Professor V. B. Meen, elected President of the Royal Canadian Institute.
Professor R. E. Moyers, awarded the American Association of Orthodontists Prize.
Professor E. J. Pratt, received the degree of Doctor of Laws (*honoris causa*) from Queen's University.
Professor R. A. Rosevear, elected President of the Ontario Music Educators' Association.
Professor H. U. Ross, awarded a Nuffield Foundation Fellowship.
Miss E. K. Russell, awarded the Florence Nightingale Medal of the International Committee of the Red Cross Society.
Dr. E. H. Shannon, appointed a Councillor of the Radiological Society of North America.
Professor A. C. Singleton, appointed a Councillor of the American College of Radiology.
Professor D. Y. Solandt, elected a Fellow of the American Association for the Advancement of Science.
Mr. W. S. Wallace, awarded the degree of Doctor Laws (*honoris causa*) from the University of British Columbia.
Professor H. S. Wilson, awarded a fellowship at the Huntington Library, California.
Professor F. V. Winnett, appointed Director of the American School of Oriental Research, Jerusalem.
Miss M. T. Wishart, appointed Chairman of the Board of Governors of the Association of Medical Illustrators.
Dean C. A. Wright, received the degree of Doctor of Laws (*honoris causa*) from the University of British Columbia.

The following members of our staff have died during the year:

T. Cowling—Assistant Dean and Professor of Dental Technology and Metallurgy—April 16, 1950;
G. R. Edwards—Assistant Professor in Engineering Drawing—June 15, 1950;
H. W. Price—Professor Emeritus of Electrical Engineering—Febuary 14, 1950;
A. R. Zimmer—Professor of Electrical Engineering—November 11, 1949.

Retirements

W. H. Clawson—Professor of English;
J. R. Cockburn—Professor of Engineering Drawing and Head of the Department;
W. L. Robinson—Professor of Pathology and Associate Director of Applied Pathology;
J. Satterly—Professor of Physics;
L. Smith—Professor of Music;
J. E. Toomer—Assistant Professor in Metallurgical Engineering;
H. B. Van Wyck—Professor of Obstetrics and Gynaecology and Head of the Department;
H. Willan—Professor of Music.

Resignations

J. G. Andison—Associate Professor of French;
G. Bates—Associate in Medicine;
E. A. Broughton—Associate in Medicine;
E. C. Bullard—Professor of Physics and Head of the Department;
E. de Chasca—Associate Professor of Italian, Spanish, and Portuguese;
C. D. Gossage—Director of Health Service;
C. H. Haagen—Assistant Professor in Psychology;
Mrs. R. D. Hawkins—Assistant Professor in Medical Research;
Miss L. E. Massoth—Associate Professor of Social Work;
P. E. Pashler—Assistant Professor in Physics;
Miss M. D. Salter—Assistant Professor in Psychology;
A. F. C. Stevenson—Professor of Mathematics;
E. J. Trow—Associate in Medicine;
A. H. Veitch—Associate Professor of Oto-Laryngology;
Miss E. Weber—Lecturer in Library Science, Ontario College of Education;
H. W. Wookey—Associate Professor of Surgery;
Miss J. G. Wright—Assistant Professor in Botany.

Leaves of Absence

J. G. Andison—Associate Professor of French;
C. L. Ash—Assistant Professor in Radiology;
Miss H. A. Bennett—Lecturer in Nursing;
L. O. Bradley—Associate Professor of Hospital Administration;
H. M. Cassidy—Director of the School of Social Work;
E. A. Dale—Professor of Classics;
W.T. Easterbrook—Associate Professor of Political Economy;
C. E. Hendry—Professor of Social Work;
L. T. Morgan—Associate Professor of Political Economy;
S. G. Murray—Lecturer in Political Economy;
M. A. Peacock—Professor of Crystallography and Mineralogy;
F. E. L. Priestley—Associate Professor of English;
C. D. Rouillard—Professor of French;
G. Taylor—Professor of Geography and Head of the Department;
B. Wilkinson—Professor of History;
H. S. Wilson—Associate Professor of English.

Promotions

Faculty of Arts

Head of Department—G. B. Langford, Geological Sciences.
Professors—T. A. Goudge, Philosophy; E. W. McInnis, History; C. D. Rouillard, French.
Associate Professors—A. W. Currie, Political Economy; W. D. B. Grant, English; G. F. Heard, Astronomy; F. E. L. Priestley, English.
Assistant Professors—J. M. S. Careless, History; C. W. Dunn, English; Miss V. E. Engelbert, Zoology; C. C. Gotlieb, Physics; P. E. Pashler, Physics; G. D. Scott, Physics; G. S. Vickers, Art and Archaeology.

Faculty of Medicine

Professors—Miss F. H. Fraser, Hygiene and Preventive Medicine; R. E. Haist, Physiology.
Associate Professors—W. H. Brown, Medicine; H. H. Hyland, Medicine; J. L. McDonald, Surgery.
Assistant Professors—C. L. Ash, Physiology; B. F. Crocker, Biochemistry; E. S. Goranson, Physiology; F. G. Kergin, Surgery; D. R. Mitchell, Surgery.
Associates—C. Aberhart, Surgery; E. A. Broughton, Medicine; W. G. Carscadden, Surgery; J. T. Danis, Surgery; F. C. Hamilton, Medicine; H. H. Hyland, Psychiatry; S. H. Jackson, Pathological Chemistry; A. J. Kerwin, Medicine; J. R. McArthur, Medicine; J. R. F. Mills, Surgery; N. W. Roome, Surgery; S. A. Thomson, Surgery; Miss M. I. Tom, Neuropathology; C. H. Watson, Surgery; F. R. Wilkinson, Surgery.

Faculty of Applied Science and Engineering

Dean of the Faculty—K. F. Tupper.
Professor—W. G. McIntosh, Mechanical Engineering.
Assistant Professors—G. R. Edwards, Engineering Drawing; W. A. Wallace, Mechanical Engineering.

Ontario College of Education

Associate Professors—H. M. Fowler, Educational Research; Miss M. E. Silverthorn, Library Science.
Lecturers—T. G. H. Luther, Industrial Arts and Crafts; E. B. Rideout, Educational Research; J. C. Spry, Industrial Arts and Crafts.

Faculty of Music

Assistant Professor—L. R. Bell, part-time.

Faculty of Dentistry

Professor—R. E. Moyers, Orthodontics.
Assistant Professors—J. B. Macdonald; O. J. Yule.
Associates—C. E. Aho; J. L. Chalmers; M. J. Gibson; A. E. Hobden; W. R. Jackson; D. H. J. Macdonald; D. S. Moore; J. E. Moser; F. T. Pearson; J. D. Purves; M. N. Rockman; H. J. Wildfong; A. W. S. Wood.

School of Architecture

Assistant Professor—A. P. C. Adamson.

School of Physical and Health Education

Director—H. A. Cates
Assistant Professor—Miss Z. Slack, Physical Education, Women.

School of Hygiene

Associate Professor—A. M. Fisher, Physiological Hygiene.
Assistant Professors—Miss E. M. Stuart, Hospital Administration; Miss E. M. Taylor, Chemistry in Relation to Hygiene.

New Appointments

Faculty of Arts

Visiting Professors—W. G. S. Adams, Political Economy; R. Bray, French; F. S. Dainton, Chemistry; A. Faucher, Political Economy; K. Feiling, History; R. A. Fisher, Chemistry; M. Ginsberg, Political Economy; D. A. McGibbon, Political Economy; H. Mehlberg, Philosophy; J. M. Thorborn, Philosophy; R. E. Watters, English; L. A. Willoughby, German.

Assistant Professors—F. N. Beard, Political Economy; W. J. R. Crosby, Mathematics; D. A. Fraser, Mathematics; D. G. Ivey, Physics; M. W. Lister, Chemistry; M. A. Preston, Physics.

Lecturers—G. Bennett, History; B. N. Brockhouse, Physics; T. L. C. Dawson, Italian, Spanish, and Portuguese; F. M. Doan, Philosophy; D. Joves, Political Economy; Miss A. M. Kemp, Political Economy; G. N. Kulikovsky, Slavic Studies; V. Moudry, History; J. A. Molinaro, Italian, Spanish, and Portuguese; H. L. Nelson, History; J. Odin, Slavic Studies; G. E. Reesor, Physics; A. N. Reid, Political Economy; E. Rhodes, English; M. Sanouillet, French; R. M. H. Shepherd, Classics; R. G. Stanton, Mathematics; H. O. Steer, Psychology; J. C. Wernham, Philosophy; M. W. Wright, Psychology.

Faculty of Medicine

Professor Emeritus—H. B. Van Wyck.
Lecturer—J. V. Basmajian, Anatomy.

Faculty of Applied Science and Engineering

Professor Emeritus—J. F. Cockburn.
Assistant Professor—W. F. Graydon, Chemical Engineering.
Lecturers—T. L. Batke, Chemical Engineering; H. A. Courtice, Electrical Engineering; A. J. Kravetz, Electrical Engineering; H. F. Philp, Electrical Engineering.

School of Law

Dean—C. A. Wright.
Professors—B. Laskin; J. Willis.
Associates—E. L. Haines; W. A. G. Kelley; H. S. Parkinson.

School of Architecture

Lecturers—M. Bach; A. Elken; G. A. Robb.

School of Social Work

Lecturer—Miss R. Godfrey.

School of Nursing

Lecturer—Miss O. Griffith.

School of Hygiene

Associates—A. F. Graham, Virus Infections; C. E. A. Robinson, Public Health Administration.

THE BOARD OF GOVERNORS

The University suffered a serious loss in the death of Mr. George H. Ross, who was a member of the Board of Governors for twelve years. As Chairman of the Finance Committee, he contributed much to the financial stability of the institution during difficult years.

It was a matter of satisfaction to his host of friends and admirers that Dr. H. J. Cody, President Emeritus, was reappointed to the Board on May 18, 1950. Once more he will be able directly to promote the welfare of the University, to the

development of which he has contributed so significantly. No man knows so well its history, its ethos, and its problems as Dr. Cody.

STUDENT ORGANIZATIONS

Yearly tribute to the prudent and competent administration of extra-curricular affairs by the Students' Administrative Council and the various college, faculty, school and class organizations of the students is not the product of habit but of genuine appreciation. The excellent leadership expected of, and rendered by, mature ex-service personnel is being ably continued by younger students who manifest also good taste, a sense of fitness, balanced judgment, and administrative capacity. The desirable canalizing of youthful enthusiasm for recreational, recreative, and constructive purposes by student executives may well be considered as a test of wise leadership. A mere aggregation of activities should never be mistaken for good programmes. In some cases where the projects of student organizations are not worthy of the University, care must be taken to point out that self-government is based on the premise of self-discipline. If self-discipline is not exercised, self-government must be modified. Not to excuse, but rather in an effort to understand, it must be observed that student excesses are frequently a reflection of the moral and social climate of the community. Educational institutions have a responsibility to give leadership, but the fulfilment of that role is often made exceedingly difficult, if not impossible, by the failure of some homes and the community at large to exemplify high ideals in ethical conduct and in social communications. The University is anxious for a more co-operative partnership with the home, the church and with other organizations designed for the betterment of society.

It has become increasingly apparent that the University must re-examine and re-assess the place and purpose of extra-curricular activities. The problem is not peculiarly our own. It is simply part of a trend that, having developed in the United States some time ago, is now reaching Canada. In polite professional terminology, the trend is known as the integration of the university with outside life. According to this policy, far from withdrawing into an austere world of its own, which would be regrettable, the university should become a microcosm of society; and far from being selective, should be a large and colourful display case for a multitude of popular wares. In curricular matters, we have not as yet been too receptive to this latest gospel of progress. But in the area of activities that surround and sometimes obscure curricula there is ground for concern. The student need no longer fear that he will be entering an academic retreat. Indeed, it is doubtful if the average citizen faces in his daily life a world so diverse and distracting as the one that confronts the undergraduate. The latter is assailed by a bewildering variety of claims on his energy and his time. Clubs, organizations, and societies proliferate; social events, rallies, and musical reviews crowd upon him, each oft-times surrounding itself with an elaborate ritual. The students are in danger of being "clubbed" to distraction.

In its simplest form the problem arising from this growth in extra-curricular activity is that of finding the time within the session to satisfy the demands of all. In a university with so many academic entities as ours the problem may become nearly insoluble, especially when college and faculty rivalry, in itself part of the strength of the University of Toronto, leads to over-reaching of effort, however well intentioned. In this respect, one might instance the humorous musical review. It would be a gala Broadway season that could produce half the number of musical shows that one can see on this campus within the space of six weeks during the Michaelmas term. True it is that the prospect of examinations acts as a deterrent to the prolonging of big extra-curricular activities into the Easter term. But this in itself merely accentuates the problem. Activities are forced back into the opening months and vie with each other for the limited hours that are available in a short term. Thus the whole rhythm of the session is disturbed. The busy extrovert of the

autumn becomes the recluse of the spring, or, what is more likely, finds it impossible to adjust himself to the final academic challenge. What should be a gradual process, an exercise in self-discipline and self-development, becomes a problem in strategy, in how best to make the final leap without running the preliminary course. It may be argued that any college, faculty, or school organization of students appeals to and draws only on its own members. That is less true than it was a few years ago. Many organizations bid for the support and attendance of students of other colleges, faculties, or schools. In fact, they depend on such support and attendance for the very success of their large enterprises.

What is urgently needed is a body constituted and operated by the students that will carefully review proposed extra-curricular events with the aim of planning a just distribution. Such a proposal will not be realistic until we explore the possibilities of consolidation and co-operation, and until we arrive at some understanding as to the sphere that should be assigned to the constituent units and to the University as a whole. And underlying any reappraisal of the programme must be an honest attempt to answer the question: What is the purpose of extra-curricular activities in the University and what kind of activities should we encourage to fulfil this purpose? I offer a fundamental answer to the first part of that question, and it is this: extra-curricular activities should be designed to contribute to the educational processes of any college, faculty, school and the University.

The organization of student life has now reached a stage of complexity where a movement in the opposite direction would be salutary. Extravagance always takes its toll. I do not suggest that we should emulate the Emersonian distaste for societies and organizations, but I declare that the mere act of joining a group, a club, or a fraternity does not in itself add a whit to our stature, and that here, as elsewhere, we must exercise our powers of temperance, discrimination, and selection. At the same time, we should encourage the critical examination of the concept of the "well-rounded career," so often presented to students as an ideal. It can become merely an ideal of undiscriminating expansion. It is well to remember that unless there is a firm centre, it is difficult to describe a circle.

In the report of the Warden of Hart House for 1948-9 there are two significant statements: "Activities that are mainly recreational and are organized in clubs fared best and showed the most vigour. Other leisure time activities that might be described as being of broader educational value are not attracting any considerable proportion of the undergraduate body." In the latter category would be discussion groups, debates, concerts, dramatic performances, and activities designed to awaken an interest in, and knowledge of, the arts. These are of the very essence of the University's undertaking. They are vital offerings that, often, cannot be included in the formal routine of lecture, laboratory, and seminar. To the fundamental academic discipline, they add the virtues of mental flexibility and ease. If there has been a decline in interest in such activities, we must all share the responsibility. The student body might very well sacrifice some of its more extravagant commitments; the staff might remind themselves that an interest in such extra-curricular activities issues most naturally from lectures and seminars that are challenging and alive, and that time freely and informally given to the students is the best of investments. The voluntary co-operation of staff, graduates, and students in cultural activities will produce a finer graduate than compulsory attendance at many formal exercises for the identification, illustration, and appreciation of the beautiful, the good, and the true.

As I stated in my Opening Address on September 20, 1950, I am weary of hearing the utterances of the Jeremiahs and Cassandras of older generations as they bemoan the weakening of the fibre of Canadian youth. "Ignorant," "irresponsible," and "paganistic" are some of the epithets hurled at them.

I recall clearly that in the nineteen-thirties many persons described the youth of those years as empty-headed and light-hearted. What a calumny that was! In

World War II, Canadian youth demonstrated that they had robust intellects, stout characters, rare capacity for leadership, singular devotion and courage, and the stuff of nationhood. Some university members are frequently eager to denounce the work of the secondary schools. With those denunciations of our current entering classes, I substantially disagree. It is my considered testimony that, speaking generally, matriculants are better prepared than those of an older generation were, and that the class of 1950 from high schools are as responsive to high ideas and ideals as the class of 1911—my own group—were.

ALUMNI

There are 52,458 living graduates of the University of Toronto and over 50,000 living ex-students and certificate- and diploma-holders. What a power they could be individually and collectively for the advancement of their Alma Mater and her ideals! That force has not been really tapped. All of us must strive to make it clear to those 100,000 and more that "Au Revoir" and "Godspeed" uttered to them as they left the halls of the University did not mean "Good-bye, Good-bye Forever!" I spent three weeks in January and February of this year in western Canada. I was encouraged by the interest in and loyalty to the University manifested in alumni gatherings. While the devotion to a particular college, faculty, or school was always evident, it seemed to me that the desire to support the University as a whole had increased by at least the square of the distance from Queen's Park. I wish that I had the time and the energy to do more than I have done to translate the sentiments of our graduates into a continuous and enriching flow of constructive advice, enlightened interpretation, and firm pledges which their Alma Mater so sorely needs.

THE FACULTY OF ARTS

The coming to our academic community of a new head for Victoria reminded us anew of the strength of our federation in the field of arts. When I first called on President Moore, I remarked that I will always strive to understand his viewpoint as he seeks to advance the interests of Victoria. He thanked me for my declaration and he declared forthwith that he must always keep in mind the interests of the University as he labours for Victoria. Therein is an epitome of the spirit of federation that is not to be found in any formal agreement or in any statutory enactment. To my colleagues, the heads of federated or affiliated institutions, I express my gratitude for their exemplification of that principle.

Principal Taylor properly points out that while a shrinkage of student enrolment in University College involves a decrease in the load of undergraduate training the relief is counterbalanced by the heavier teaching programmes of members of the staff in the field of graduate studies and in other faculties and schools of the University. The increased service of University College and of University departments in Arts to professional schools is—as I endeavoured to point out earlier in this Report—salutary.

You have read in former annual Reports of the strong feeling that our programme in the field of the liberal arts needs to be re-examined. The post-war period has imposed new burdens and responsibilities upon institutions of higher learning. Wider opportunities for a university education have been accompanied by an increasing demand for it, and both reflect the heightened importance which higher education is assuming for the community at large.

The increase in registration has affected not only professional faculties, but to a significant degree the Faculty of Arts as well. Side by side with the desire for training in a specific profession there is a continued and growing demand for the more traditional type of education in which the acquisition of professional skills is subordinated to the study of the social and cultural aspects of our civilization. This

does not mean that a gainful occupation is a matter of indifference. A large proportion of Arts graduates must look forward to earning their own living. Yet the usefulness of an education is not measured solely by the immediate economic returns. There are other tests of utility than simply the acquisition of the tools of the trade, and the individual as well as the community may derive direct and tangible benefits from a programme the aim of which is the development of a trained and informed intelligence.

Beginning with the session of 1951-2, a new general course in the Faculty of Arts will replace the present Pass and General Courses. To the end that the Board, the Senate, secondary schools, and the general public may understand better the objectives of the new programme and its methods—important only as means to attain aims—I am setting forth hereunder a statement prepared by Professor E. W. McInnis who was Chairman of the Special Committee appointed in 1947 to study some of the problems of general education in this institution and to propose solutions.

"There are two broad groups to whom a general Arts programme has a particular appeal. One is composed of those whose formal education will end with graduation, but who are interested less in specialized study than in contact with a relatively wide range of subjects. The other embraces those who will go on after graduation to various professional schools and to training in such fields as law and theology and social work, and who wish to secure a broad foundation as a preliminary to this advanced specialization. There is little need to emphasize how important these groups are, and how desirable it is that their needs should be met by the University to the best of its ability. But if they are to be served, there must be available to them a programme of studies that is not solely concerned with technical training or with the intensive study of a single branch of knowledge.

"A distinctive feature of our Arts curriculum is the complete separation of pass from honour courses. The latter are usually comparatively narrow in their range and exacting in their standards. They provide a training of whose quality the University is justly proud, but they are not always suited to the needs or the abilities of all students entering the Faculty of Arts. In the Pass Course the student is not only permitted, but compelled, to take a wider range of subjects than most honour courses offer, and it is to the Pass Course that a student seeking a general education might naturally be expected to turn.

"As matters stand, however, the Pass Course is a somewhat unsatisfactory instrument. The honour courses tend to attract the abler students, and are traditionally the first concern of the teaching departments in their undergraduate work. There is less feeling of responsibility toward the Pass students as a body and less effort expended on them. Personal contact between student and instructor is rarer than it is in most honour courses, and the performance required is generally lower. Both of these facts mean a reduced stimulus as well as lower demands. Consequently, the student whose abilities are not up to honour standards, or who is less interested in his studies than in the social aspect of University life, finds in the Pass Course a natural haven, to the disadvantage of those students in the course who are genuinely trying to do serious work, and who are unable to escape the stigma of inferiority under which the Pass Course labours. Unquestionably there are many students who enter honour courses, not primarily because those courses represent their main interests or are most suited to their capacities, but to avoid being classed with the lowlier beings in the Pass Course.

"In 1933 an attempt was made to provide a partial remedy. A General Course was created into which a student with adequate standing could enter from the Pass Course at the end of his second year, and in which he could embark on a somewhat more integrated programme than the Pass Course allowed. But while it would take him four years to attain his degree, as compared to three in the Pass Course, he still would not attain honour standing or the various advantages which accompany it. Consequently, the incentive was limited, and only a handful of students were at-

tracted. The General Course created complex administrative and teaching problems without conferring corresponding benefits.

"In the report of the Special Committee, the basic criterion for a sound general education is summed up in these words: 'It should produce graduates who have done enough concentrated study to appreciate the problems of the specialist and the nature of his outlook, yet who by the breadth of their education are fitted to understand the relations between the attitude of the specialist and the needs and views of the community.' Distribution must be combined with concentration, and it is these twin principles that are fundamental to the structure of the proposed new course.

"To begin with, it has been felt that the student should have contact with the main fields of knowledge and the main types of academic discipline at the university level. The subjects offered have been divided into four groups, roughly corresponding to the languages, the natural sciences and mathematics, the humanities, and the social sciences. In his first year the student is to select six subjects, including at least one from each of the four main groups, among which there must be a language other than English. This breadth of choice is intended to provide a general background covering various salient aspects of our society and its heritage, and at the same time to give the student some experience with the diverse intellectual techniques that characterize the major disciplines.

"In his second and third years, the student will build his programme around a 'subject of concentration.' This must be a subject which he has already taken in his first year. Normally, he will take two courses in this subject in his second year and a further two in the same subject in his third year. In a few special cases a combination of a single course from each of two closely related subjects—for instance, physics and mathematics—may be accepted in place of two courses in a single subject, but the latter combination will be the general rule.

"This is one of the key features of the new plan. It is obvious that this amount of specialization will not offer anything like the intensive training in one field that is provided by the honour courses. It is not meant to do so. It is intended primarily to give the student the experience that comes from dealing with a subject on a more solid basis than is usually possible within the present Pass Course. The opportunity for a somewhat more thorough study of a particular topic can be both stimulating and rewarding, and may enable the student who is not himself a specialist to gain some insight into the problems and techniques with which the specialist has to deal.

"In addition to the subject of concentration, three other subjects must be chosen in each of the second and third years. In order that an adequate breadth may be assured in the student's programme, it is stipulated that choices must be made from at least two groups outside the one in which the subject of concentration falls. Thus while a student may still choose courses from all four groups of subjects, it is possible for him if he so desires to drop one of them in each of the second and third years. In those years a student whose interests are chiefly literary, for example, need no longer take a science or mathematics; a student who is repelled by foreign languages will be permitted to forgo them. There is however a stipulation in the interest of continuity that not only the subject of concentration, but two out of three remaining subjects that are chosen in the second year must be chosen in the third year as well.

"Taking this hypothetical student with a literary bent, his programme of studies might follow some such pattern as this:

I Year: English, French, Mathematics, History, Religious Knowledge, Philosophy A.
II Year: English (two courses), French, History, Psychology.
III Year: English (two courses), French, History, Political Science.

It will be obvious that Latin, say, could be substituted for French, and Art and Archaeology or Philosophy B for History. It must also be remembered that time-

table considerations will prevent a completely free choice, and that not all departments will admit a student to courses in second or third year unless he has taken the subject in previous years.

"It is hoped that these proposals, with their provisions for coherence and continuity as well as for a balanced diversity, will lead to a marked improvement in standards as compared with the old Pass Course; and the name Pass, with its accretions of prejudice, has been dropped in favour of the title 'General Course.' Neither the change of name nor the change of structure, however, would by itself be adequate without more positive and specific steps to make sure that a reasonable standard of work is required.

"Particularly in the subject of concentration in the second and third years higher achievement has been proposed. Fifty per cent remains the passing mark for each individual course; but in each year, in the two courses of the subject of concentration taken together, the student must obtain an over-all average of 60 per cent. As an added sanction, the student who falls short of this requirement will not be allowed to write a supplemental examination and will thus fail his year. Consequently, while a relatively small part of his course of studies is affected by the change, it is a most vital part, and the change seems calculated to encourage more serious work and to have a beneficial effect on the course as a whole.

"On this hypothesis it is more than ever desirable to see that the students who enter the course are reasonably capable of meeting its requirements. Even at present, approximately one-quarter of the students who enter first-year Pass fail to get clear standing at the end of their year. The lower their standing at matriculation, the higher is the incidence of failure. It is a wasteful process; it wastes the time of the student, the energy of the teacher, the public funds which provide most of the costs of tuition. If the student in future is to be asked to measure up to a somewhat more stringent standard, common sense seems to demand a more careful selection at the outset.

"Not all the waste can be eliminated. If any infallible method of selection has been devised, it was not brought to the notice of the committee. A compromise had to be sought between requirements so low that they would admit too many of the unfit, and requirements so high that they would exclude too many capable students in the process of eliminating the incompetent. The proposed demand for third-class standing in at least four out of the nine papers in Grade XIII represents such a compromise. On the basis of the figures for 1947-8, some 78 per cent of the students entering first-year Pass reached or exceeded that level, and the incidence of failure was well below the average; it was the high percentage of failures among the remaining group that weighted the figures adversely.

"Such a modification of entrance standards cannot seriously be regarded as a denial of opportunities for higher education. There are few educators who would not wish to see those opportunities widened by the elimination of the economic obstacles which bar so many capable and intelligent young people from a university career. But it is surely a truism that the man or woman who aspires to a university education must be able and willing to profit by it. A student must show the industry and application that will enable him to do the necessary work, and the intelligence that will develop through academic training to intellectual maturity. If either of these is lacking, his presence in the university is no longer of appreciable benefit to either party.

"It is evident however that if the new course is to achieve its objective, the added demands will not be on the students alone. The teaching staff will be called upon to make its contribution in the form of additional courses and increased individual attention. To make this possible, some added facilities will be needed in the form of equipment and personnel. No improvement can be effected without an increase in effort, accompanied inevitably by a measure of expense. If the University is to make its maximum contribution, in quality no less than in quantity, it needs

the full co-operation of the community; but if through their co-operation the results here aimed at can be achieved, the gain will be many times worth the price."

To Professor McInnis's description of the new course and his delineation of its objectives I would add only an expression of hope that it will not be considered inferior to any honour course. It is a different course with different aims. I expect that it will attract gifted students who do not desire to specialize, at least at that stage in their careers, and who seek to study on the wider front thus provided and yet test their mettle in more intensive study. Its primary purpose is to provide an opportunity "to study the material universe and to study man as a sentient, thinking and spiritual being."

THE FACULTY OF MEDICINE

This Faculty, in terms of registration, is now the largest medical undergraduate training centre on the North American continent. That may be a doubtful distinction. Other medical schools with greater financial backing have undoubtedly found that there is a maximum size beyond which supervision and personal communication between the teacher and his students will be sacrificed.

The welfare and progress of medical schools are directly related to public health. The spread between tuition fees and the per capita cost of educating students is greater in Medicine than in any other faculty. If more financial assistance is not accorded to these schools by governments, the country will suffer in the decline of teaching standards. Grants for medical research are not enough: they could drain off first-class personnel who are needed for teaching and guiding students. The gravity of the problem cannot be exaggerated.

The Faculty of Medicine has taken over the courses in Physical Therapy and Occupational Therapy, and this has brought a reorganization of the curricula whereby students will now take one course to qualify for practice in either or both of those fields. Convalescent therapy and rehabilitation will be advanced by the new programme.

Improved and increased facilities in teaching hospitals have as direct a bearing on the work of the Faculty as the accommodation and equipment provided in the University's buildings. Better facilities for this purpose are needed in the Toronto General Hospital. The needs of the Department of Psychiatry for more adequate accommodation are pressing. The postgraduate and refresher courses are of the utmost significance for the profession and the public. No longer can they be regarded as mere appendages to the task of training undergraduates. Yet busy clinicians are carrying a double load. Could not some of the older members, after retirement from teaching undergraduates, be engaged to conduct some of the postgraduate and refresher courses? Their experience could thus be retained and the younger men could be relieved of some of their burdens to the benefit of the Faculty as a whole.

From the many distinguished visitors to the medical school during the past year staff and students have learnt much and in turn, it is not presumptuous to suggest that the guests have learnt something from the school.

Your attention is drawn to Dean MacFarlane's comments on the work of the steroid chemical and the isotope laboratories and the experimental projects in the use of cortisone and ACTH.

THE FACULTY OF APPLIED SCIENCE AND ENGINEERING

Dean Tupper has raised the problem of foreign students whose command of English is not adequate, and this problem extends beyond the boundaries of any one faculty. We welcome those undergraduates, yet it is not a kindness to them to place them forthwith into classes that require a basic knowledge of English. Those foreign students, if successful and happy in their academic work, will return to their native countries as ambassadors of good will, and their influence may be enhanced by

virtue of their self-accredited role. We should have some organization whose responsibility it would be to advise and to assist these strangers within our gates. The establishment of a type of residence, known as International House, would go far to orientate these students, to enable them to get the most out of their work, and to contribute their share to the life of the University.

It is to be hoped that the higher admission standards for the Faculty of Applied Science and Engineering, effective for the first time in the session of 1950-1, will result in a lower failure rate in the junior years.

Discussions in the Faculty with respect to the dividing line between applied and pure science have demonstrated that a man must be a scientist before he can apply science. An engineer must be able to use fundamental principles. He does not qualify as an applied scientist if he depends only on the experience that comes from repetitive acts or if he is a "gadgeteer" who merely manoeuvres his material according to rules of thumb. The establishment of additional technical schools would make more manifest in this country the role of a Faculty of Applied Science and Engineering.

There accompanies this Report a statement from the newly established Institute of Aerophysics that has for its objects the training of scientific personnel for research and developmental work in aerophysics, the carrying on of basic research, and the developing of practical applications in this field. The support, financial and advisory, of the Defence Research Board has made possible this new project. Biologists have never answered to their own satisfaction the question, which was first, the chicken or the egg. Academic administrators have a constant query not entirely dissimilar. Which should be first—the research facilities or the man? Dr. Gordon N. Patterson, the distinguished Director of the Institute of Aerophysics, has given in his own person an answer: "the man." He was appointed to the staff and there was added unto him the new laboratory.

THE FACULTY OF HOUSEHOLD SCIENCE

In April, 1947 Professor Clara Brown Arny, an outstanding member of the staff in Home Economics of the University of Minnesota, was invited to make a survey of the honour course in Household Economics leading to the degree of Bachelor of Arts and of the course leading to the degree of Bachelor of Household Science in the Faculty of Household Science. For some time after the receipt of her report there appeared to be little disposition to adopt any of her main proposals. There is, now, I am pleased to report, a willingness to consider the possibility of offering, in addition to the honour course in Arts which emphasizes the scientific approach to household economics and food chemistry, courses requiring less of the physical sciences and more of the social sciences and of the humanities. In the senior years of such a programme there could be concentration in such fields as child psychology, social work, public health and nutrition, food chemistry, textiles, and institutional management. The University has many resources that could be drawn on for the offering of a course in home economics that would be of a more general character, yet would provide a discipline worthy of university recognition.

THE ONTARIO COLLEGE OF EDUCATION

The statement of Dean Lewis with respect to the graduates of the University who hold the degree of Bachelor of Music in school music indicates that this undergraduate course is filling a need of the schools. The increase in the registration for the degree of Bachelor of Pedagogy is encouraging. The new wing to the College building which is now completed contains increased facilities for graduate work, educational research, and courses in music, and, as well, shops for vocational training and a gymnasium.

THE FACULTY OF FORESTRY

The demand for trained foresters is unabated, notwithstanding that nearly five hundred men have been graduated in eastern Canada in 1949 and 1950. That is more than one-third of the number who completed degree courses in Forestry in all the schools of Canada prior to 1949. The graduate work offered through the Faculty is increasing. That factor will serve to promote research. It is gratifying to record that the University Forest is being used more every year for instructional and research purposes. The Faculty is rendering valuable service, in terms of scientific personnel and in research, to industries based on timber resources. It is to be hoped that the leaders of those industries will invest to a greater extent in development of the Faculty. The value of the direct dividends has been demonstrated.

THE FACULTY OF MUSIC

The Faculty Council is reviewing the curricula of the courses in Music leading to the degree of Bachelor of Arts and to the degree of Bachelor of Music. Although changes in organizational structure may have no great significance in themselves, they often lead to the improvement of academic work. The committee appointed to consider a closer integration of the several academic programmes has not yet reported.

GRADUATE STUDIES AND RESEARCH

During 1949-50 registrations in the School of Graduate Studies totalled 1,331. Although it is reassuring that the School is attracting large numbers, yet this peak enrolment arouses a concern for the calibre of the work. We are all agreed that qualitative and not quantitative standards must be the aim of any university course. To no division of the university is that basic principle more applicable than the School of Graduate Studies. The School, reorganized in 1947, is yearly becoming more of a unit. It is no longer a bundle of departments with varying degrees of academic autonomy, tied together with a mere organizational ribbon. The work of administrative committees for each of the divisions is contributing to uniformity of standards, which is different, of course, from uniformity of methods. The Executive Committee and the Council are welding the graduate policies of departments in the physical and biological sciences, the social sciences and the humanities. Dean Innis in his report warns us: "Departments vary greatly in their capacities to direct research, and the task of achieving uniformly high standards for graduate work in all departments is indeed a difficult one. But the problem can be solved, first, by careful scrutiny on the part of the University in order to secure proven ability in scholarship and research in any new appointment, and, second, by equally careful scrutiny on the part of departments of the ability of would-be graduate students." I can apprehend more clearly than I did in 1945 the importance and significance of my statement in my Inaugural Address:

> Graduate Schools should not be preoccupied with occupational objectives, not even the laudable purposes of training men and women for places on university staffs. The graduate field should be primarily one of seeking and finding for both students and teachers. There, the very hormones of universities may be secreted. There, teachers, if they are to do more in a university than flail old academic straw, should find the opportunity to explore for themselves and thereby advance the frontiers of knowledge and also engender in all their students the zest of the adventurer. In Canadian universities there is an urgent need for a resounding restatement to the effect that research and allied activities and the directing of students in graduate schools should be something more than appendages to an overcrowded time-table of undergraduate teaching. Implicit in that declaration, there would be the fact that teaching and research are truly complementary.

Earlier in this Report I observed that some professional or quasi-professional subjects might be taken out of the undergraduate programmes. That is not to say that such work should be offered in the School of Graduate Studies. If those offerings merit recognition by the University, they should be placed in the post-baccalaureate

field. "Post-baccalaureate" should never be treated as synonymous with "graduate."

The Executive Committee of the Senate for the past two years has been studying this problem and at a recent meeting of the Senate there was adopted the following recommendation submitted by its Executive Committee:

1. No new graduate degrees shall be established merely because
   (*a*) a Bachelor's degree exists in that field,
   (*b*) the degree is granted elsewhere,
   (*c*) it is claimed that it will initially help a student to obtain a position on graduation *or* that graduates of this university will suffer by comparison with others who hold such a degree.
2. In order to be considered the new degree must embrace a well-differentiated field of knowledge or discipline.
3. The course of study must be reaching into the frontiers of knowledge and not be mere presentation of more material designed to train a person for employment in a specific field.
4. The recommendation to the Senate that the degree be established shall receive a favourable vote from at least two-thirds of those present at the meeting of the Council of the School of Graduate Studies at which it is proposed.
5. A statute of Senate establishing a new degree must receive a favourable vote from at least two-thirds of those present at the meeting at which second reading is sought.

As Dean Innis points out in his report, the preparation of students for graduate degrees taxes the energies and resources of the staff to the utmost limit. The University of Toronto has a special responsibility to maintain and improve its graduate programmes for the national benefit. A smaller enrolment in the School might be more indicative of the adequate discharge of that responsibility. One gifted and well-grounded "master" or "doctor" may be of more value to the nation than six academic pedestrians. If the staff have neither the time nor the facilities for directing and encouraging the self-development of that gifted graduate student, the School is failing in its mission. The need for fellowships with stipends comparable to those offered in leading graduate schools in the United States is related to the very progress of the School. Moreover, if Canada is to retain many of its ablest young men and young women, graduate facilities and education of the highest order must be built up within our national boundaries and opportunities must also be afforded to them of obtaining within Canada challenging and remunerative employment. In the University of Toronto during 1949-50 approximately $1,074,436 was spent in research. The list of projects, as I pointed out earlier in this Report, is imposing. Here again, however, qualitative rather than quantitative tests must be applied. Publication is probably the best index of successful investigation and the search for new fundamental principles. But it must be kept in mind that premature publication may disqualify an investigator as a true researcher. On the basis of publication, the list of research projects is gratifying.

THE FACULTY OF DENTISTRY

Seventy-five years ago the Royal College of Dental Surgeons of the Province of Ontario established the first dental school in Canada. During the first fifty years this school was merely affiliated with the University of Toronto. In 1925, it became the Faculty of Dentistry. On behalf of the University, I record our gratitude to the Royal College of Dental Surgeons for their co-operation and support in advancing dental education during the past quarter of a century. They have been understanding and helpful partners. The objects of a licensing body and a school for the training of their professional recruits are not opposite or even diverse; they are complementary.

I emphasize the importance of Dean Ellis's statement that twelve members of the staff of the Faculty have had, abroad, one or more years of graduate training. The beneficent results from this policy are obvious even to a layman. The fact that the Faculty is attracting for advanced work a larger number of graduate dentists

from other countries is noteworthy. Under the leadership of Dean Ellis, supported by an able staff, the Faculty of Dentistry is on the march.

THE SCHOOL OF LAW

In Dean Wright's report there is to be found a brief outline of the history of legal education in Ontario and the efforts of the University of Toronto to make a contribution in that regard. Some of the oldest European universities were founded for the teaching of law. Since the year 1000 universities have taught law. Traditionally and academically, it is unthinkable that the University of Toronto should not offer a law course. It must be acknowledged always that the Law Society of Upper Canada has statutory authority and responsibility to admit persons to the Bar for the practice of law. To exercise that right and to discharge that obligation the Law Society must be satisfied that candidates have the preparation necessary for admission. The University of Toronto seeks the opportunity to prove that its graduates in Law have attained the educational standards established by the Law Society for practice. We recognize, however, that the graduates in Law of the University must comply with the requirements of service under articles in law offices which apply to the graduates of all law schools, including the Law Society's Law School. The Law School of the University has a teaching staff that is, to say the least, second to no other in Canada, and it is offering theoretical courses and "clinical" training that cannot be denied full recognition. It is to be expected that such recognition will be forthcoming in Ontario. The fact that the governing bodies of the legal profession in other common law provinces of Canada have accorded that approval is not without significance. In a spirit of co-operation and not of competition the University earnestly desires to make its contribution to the progress of a profession whose role is of the very essence of our concept of an ordered and decent society, possible only within the framework of democracy. The record of close liaison between the University and other licensing bodies in the educating of medical practitioners, dentists, engineers, architects, and school teachers is an open book for all to read. In those fields the University has never been satisfied to educate professional recruits up to minimal requirements of the governing bodies. It has endeavoured to go the second mile.

With a strong staff in Law, the University of Toronto is now in a position to develop graduate work of high calibre.

THE SCHOOL OF ARCHITECTURE

The second report of the Director of the School of Architecture since its establishment in 1948 as an administrative entity accompanies this Report. Standards of admission to and attainment throughout the course in Architecture have been raised and the curriculum has been revised. The organization of the Architectural Alumni Association should contribute, in large measure, to the progress of the School. The appointment to the teaching staff of graduates from other countries should make for a catholicity of taste and design and the development to a higher degree of the types of architecture best suited to Canadian conditions and expressive of Canadian attitudes and aspirations.

THE SCHOOL OF SOCIAL WORK

In 1947 there were established the degrees of Bachelor of Social Work and Master of Social Work. The Director reports that thus far no more than 50 per cent of those who receive the degree of B.S.W. enrol for work leading to the degree of M.S.W. and of that group approximately only 50 per cent, i.e. 25 out of every 100 who registered for the B.S.W., attain within a calendar year the Master's degree. The M.S.W. is awarded only to strong students. The scholarship and bursary funds in the amount of $21,482 available to the School in 1949-50 are well invested in deserving and able students. The increasing co-operation between the School and

the social agencies strengthens the instruction, theoretical and applied, and also research. The statement of the Director with respect to three major research projects and the contributions of the staff to community service throws into focus the programme of the School not only as a teaching centre but also as an instrument for direct advancement of many public enterprises. The demand in Canada for graduates in Social Work still far exceeds the supply.

THE SCHOOL OF NURSING

The acquisition of a site for the new Nursing building on the north-west corner of Russell and St. George Streets marks another step forward for this School, so highly regarded at home and abroad. It is planned to complete and furnish the building before the beginning of the session of 1952-3. The registration is still increasing and the staff has not had the relief that has been experienced by other divisions of the University. It is to be expected that the enrolment will continue to increase. In her insistence that professional expertness should be accompanied by social understanding and wisdom, Dr. Russell proclaims objectives that might well be adopted by other professional schools. Her plea for a clearer philosophy regarding the significance of the University's degrees should not go unheeded. The requests and, in some cases, the propaganda for short degree courses, particularly at the post-baccalaureate level, which are in the main occupational in character, are increasing. If other arguments of the proponents fail, they frequently fall back on the declaration: "Well, such a course leading to a degree may be obtained in the United States!"

THE SCHOOL OF HYGIENE AND THE CONNAUGHT MEDICAL RESEARCH LABORATORIES

The work of the School of Hygiene, established in 1924, has contributed immeasurably to the public health of Canada, and, mainly by reason of its success, governments at all levels now require for their health departments or offices men and women who have had a special training in this field. The research carried on in the School cannot be regarded separately and apart from the programme of investigation in the Connaught Medical Research Laboratories. The Laboratories maintain their own research programmes and also contribute financial support for the School's projects. The Laboratories prepare and distribute sixty-eight products. As a division of the University, the Laboratories have as primary aims research and service to the public by producing the best products at the lowest possible costs. The extent of the Laboratories' service to Canada in days of war and of peace should be better known by the members of the medical profession and their patients.

THE INSTITUTE OF INDUSTRIAL RELATIONS

Accompanying this Report is the last report of the Institute, as it was incorporated on July 1, 1950, in a larger unit—the Institute of Business Administration. For centuries, universities have accepted the responsibility of educating students for the professions of medicine, law, and the church. It is a phenomenon of recent decades that universities have recognized the needs of business administration as they have become aware of the existence in that field of principles distinguishable from *ad hoc* decisions and practices. The establishment of the Institute of Business Administration is the outcome of an organic growth dating from the offering in 1903 of a course in Commerce and Finance.

The Institute of Business Administration will be responsible to the School of Graduate Studies for the administration of the Master of Commerce degree and it will continue the work of the Institute of Industrial Relations. Additional functions will include (1) research in business, production, marketing, finance, personnel administration and in industrial relations; (2) development of close contacts with business, government, industry, and unions and provision of educational services

appropriate to the professional needs of these various groups as they face increasingly difficult problems of administration; and (3) co-operation with the Department of University Extension in organizing and staffing the certificate course in Business and certain administration courses for which no formal academic credit is given.

Following the system that has proved so successful in the Faculty of Medicine and the School of Law, there will be appointed to the teaching staff on a part-time basis men of achievement and prestige in the business world. This policy should closely integrate the Institute with day-to-day developments in commerce and industry. The University has peculiar facilities for this work by reason of the strength of its social science and engineering staffs, and by virtue of its location in a highly industrialized area. We know that there is a demand for its courses from a large group of men and women who desire to do serious work at the University while continuing in their employment. It will be possible for an Arts, Commerce, or Engineering graduate to work towards a Master's degree in the late afternoons and evenings.

The Institute will draw strength from other divisions of the University. It should contribute to them. There should also be a two-way street between the Institute and the business world. The Institute will profit of course from the experience of the United States and the United Kingdom. We hope that it will develop programmes peculiarly suitable to Canadian conditions.

UNIVERSITY EXTENSION

10,016 persons enrolled for classes and courses in this Department during 1949-50. It would be impossible to estimate the benefits that accrue to the students and the University from this work. A perusal of the Director's reports of the past shows that its vitality could never have been increased or even maintained by merely repeating year after year the same courses. Its success has been due to Dr. Dunlop's sensitivity to the changing needs of the constituency. The list of the classes and courses of the Department represents a cross-section of the educational and industrial life of this metropolitan area. I endorse the Director's testimony that the Pass Course for Teachers, the first undertaking of this Department over thirty years ago, is "the most important activity" of University Extension.

THE LIBRARY

The greatest need of the University at the present time is the new Library building. The University has the funds for its erection.

THE ROYAL ONTARIO MUSEUM

In addition to the service that the Royal Ontario Museum renders to the province in unfolding and illustrating natural history and stories of man in all ages, it provides, in effect, laboratories without which certain teaching departments in the Faculty of Arts could not carry on some of their instruction and research. The co-operation of the Museum and those departments is a source of mutual vitality. Visitors to the University invariably manifest an understandable spirit of covetousness when they see the collections of the Museum, so admirably displayed.

HART HOUSE

The Warden's report bears out my earlier observations concerning the multiplicity and confusion of extra-curricular activities. There has been a decline in the interest of the students in cultural and creative programmes.

It must be recognized that extra-curricular activities which men and women may attend together are becoming increasingly popular. Many of these are not frivolous in character. I do not believe that this trend could be blocked in this co-educational institution. It could be modified. Followed to an extreme, however,

the trend could bring about a situation in which Hart House would only be a place for eating and athletic activities. That would defeat the noble aims of the founders. That would render relatively inactive a physical asset which if erected in 1950 would cost at least $7,000,000. There is an urgent need for a study of this problem by students, staff, graduates, and the Board of Governors. Is the best solution to be found in building near Hart House a co-educational students' union, the services and programmes of which could be articulated to, if not integrated with, those of Hart House? It is my growing conviction that the erection of a University women's union, as distinguished from an athletic building for women, would not solve the problem. It might aggravate it.

THE UNIVERSITY PRESS

The primary object of the University Press is "to facilitate and encourage the publishing of academic literature." It is not always appreciated even by members of the academic staff of this University how great has been the achievement in this regard. From July 1, 1949, to June 30, 1950, the amount of subsidization by the Press of scholarly publications—books and periodicals—was $43,255.90. That amount of money was earned by the Press and devoted to the advancement of scholarship not only in the University of Toronto but also throughout Canada. I have already commented on the national character of the University of Toronto. To my list of three criteria I would add a fourth factor, which from some aspects may be first in importance. It is the furtherance of scholarship not only in this institution but also in other Canadian universities. For example, the University during 1949-50 paid the excess of expenses over revenue of the *Canadian Historical Review* in the amount of $2,902.98 and of the *Canadian Journal of Economics and Political Science* in the amount of $3,957.73. It contributed $1,500 towards the expenses of the *Canadian Journal of Mathematics;* $400 to the periodical of the Classical Association, *The Phoenix;* and $1,400 to the *Canadian Journal of Psychology.*

The excellence of the editorial work and the marked improvement in format and binding have enhanced the role of the Press.

ATHLETICS, PHYSICAL AND HEALTH EDUCATION

Dr. Cates, the Director of the School of Physical and Health Education, in his first report sounds a refreshing and constructive note when he states that "to think, one must have 'spare' time, and a loaded curriculum is the very negation of the university spirit."

In my Reports of the last two years I have expressed deep concern about the threat of professionalism to intercollegiate athletics. My concern has turned to fear.

Professional sport, of course, affords to many young men an honourable way of making a living, but we of the University must never forget that this is an educational institution devoted to the developing of the intellect and the strengthening of character. Playing the game for the game's sake is an important part of the educational process and that ideal must be the very essence of the University's athletic programme.

Football, for example, is an accepted part of college life. University students with a liking and an aptitude for the game will continue to receive the best possible coaching and they will be given an opportunity to play providing they succeed in their academic work. Moreover, good high school players from Ontario communities must be certain that they always have a fighting chance to make a University team. That is their right and nobody should try to take it away from them. Those amateurs must never turn out for their first practice only to find that many of the places on the team have been filled with "pros," "semi-pros," or subsidized players carefully picked beforehand. The University of Toronto does not want students, subsidized or otherwise, whose primary purpose in enrolling is to

get on a first team. From comments which I have recently received I am confident that the staff, nearly all the students, and a big majority of the graduates will support what may be a "last ditch" stand against the forces of professionalism which have obscured the educational objectives of student athletics in many American universities.

It is gratifying to record that the Board of Governors at a meeting held on December 15, 1949, in approving of the project to enlarge the Stadium, stipulated that there must be adherence to the principles of amateur sport, that there shall not be in or for the University of Toronto athletic subsidies in the guise of scholarships or otherwise, and that there shall not be a policy of enrolling students primarily for their athletic ability.

BUSINESS ADMINISTRATION

When we realize that the total expenditures for 1949-50 of all the divisions of the University of Toronto which are responsible to the Board of Governors were over $14,000,000 on current account and over $1,000,000 for building construction, we have a better appreciation of the heavy load and the outstanding work of the Comptroller's division. As at June 30, 1950, there were on the payroll of all the divisions of the University 4,186 persons. In addition to the academic and cultural benefits to the people of Toronto, the University is an undertaking of large material advantage to the city, the name of which it proudly bears. Tribute must be paid to the competence and devotion of the secretarial, accounting, technical, and operating staffs. Without their service, the academic programmes which are the only justification for the existence and operation of the University could not be maintained.

BUILDING PROGRAMME

The University has had gratifying success in its efforts to find funds for its building programme. I am setting out hereunder a statement, compiled on June 14, 1950, which shows the total amount in cash and pledges including grants from the provincial Government and from the City of Toronto, accumulated funds allocated for special purposes, and subscriptions to the Varsity Appeal, together with the total amount that has been used in erecting and equipping certain buildings and the funds which are available for further construction.

Amount of cash and pledges	$16,758,310	
Cost of building programme to date	6,633,457	
Amount of cash and pledges still available for building		$10,124,853
Estimated cost of buildings to be erected:		$9,525,000
Central Power Plant		
Charles H. Best Institute		
Extension to Library		
University College Men's Residence		
Women's Building (extension to Wymilwood)		
Arts Building (addition to Holwood Hall)		
School of Nursing		
Archives Building		
Ontario College of Education, Extension		
Contingency reserve		599,853
		$10,124,853

(These figures do not include any amount for the enlargement of the Varsity Stadium which has been financed by the Athletic Association.)

The increased costs of building in three months since June 14, 1950, have wiped out the contingency reserve.

The heading of this section of my Report, "Building Programme," should not be taken to mean that we are concerned about the erection of more buildings for their own sake. No new building should be erected unless it can be demonstrated that it is wholly conducive to the furtherance of a sound educational programme.

I set out hereunder and reiterate the following views expressed in my Report for 1948-9:

It has often been remarked that the best university consists of a student at one end of a log and a professor at the other. There is much truth in that thought as I endeavoured to show in the earlier part of this Report. But there was more truth in it in 1900 than there is at the midway mark of this century. A mere log will not do and a professor without books, equipment, and laboratories will not do. A modern university must provide the facilities needed by first-class scholars. If those facilities are not made available, we shall not be able to retain or to get outstanding men and women as teachers and investigators. It is a sincere tribute to the sense of vocation of the professoriate to report that when I interview men and women for key positions on the staff in eight cases out of ten the first question that is addressed to me is not related to the amount of salary but rather to the facilities and opportunities that the University offers for the carrying on of their work. Bricks and mortar do not make a university; an able staff does. Without bricks, mortar, and equipment, an able staff cannot be retained or built up. Therefore, I believe that the building programme outlined herein is necessary for the educational programme. It is overdue, for it was not possible during the depression and World War II to provide the additional accommodation required by an expanding educational programme.

GENERAL CONSIDERATIONS

Attention is drawn to the reports of the Institute of Child Study, Hart House Theatre, the David Dunlap Observatory, the University Health Service, the University Advisory Bureau, the University Placement Service, the University Naval Training Division, the University of Toronto Contingent, Canadian Officers Training Corps, and the R.C.A.F. (Reserve) University of Toronto Flight.

SPECIAL CONVOCATIONS

The degree of Doctor of Laws (*honoris causa*) was conferred on the following:

October 3, 1949—The Most Honourable The Marquess of Salisbury, K.G.; The Right Honourable Lord Webb-Johnson of Stoke-on-Trent, K.C.V.O.

June 9, 1950—John Delatre Falconbridge, K.C., LL.B., M.A., D.C.L.; Sir Oliver Shewell Franks, K.C.B., C.B.E., M.A.; The Honourable Thomas Laird Kennedy; Colonel The Honourable Sir Leonard Cecil Outerbridge, C.B.E., D.S.O., B.A., LL.B.

SPECIAL LECTURES

The third Wallberg Lecture was delivered by Sir Richard Southwell on "Fifty Years of Engineering Science."

The Duncan and John Gray Memorial Lecture was delivered by the Most Reverend Maurice Roy, Archbishop of Quebec, on "Parish Life and Democracy in French Canada."

The Sir Robert Falconer Lectureship was held by the Marquess of Salisbury, Opposition Leader in the House of Lords; his subject was "Liberty and Authority—a Re-Examination" (in two parts).

The Donald C. Balfour Lecture in Surgery was delivered by Sir James Learmonth, of Edinburgh University, on "Embolism and Thrombosis of the Aortic Bifurcation."

The Banting Memorial Lecture was delivered by Dr. F. G. Young of the University of Cambridge on "Experimental Diabetes Mellitus."

The Tisdall Memorial Lecture was delivered by Sir Henry Dale, President of the British Council, on "Histamine and the Anti-Histamine Substances."

The Masaryk Memorial Lecture was delivered by Dr. Jan Papanek, Adviser to the United Nations, on "The Life and Works of Thomas Masaryk."

Dr. Wolfgang Friedmann, University of Melbourne—"The Planned State and the Rule of Law."

Professor M. Spinka, Hartford Theological Seminary—"The New Soviet Religious Policy since 1939."

Professor E. J. Simmons, Columbia University—"Problems of Control in Soviet Literature."

Professor V. Nabokov, Cornell University—"Triumphs and Tribulations of Russian Writers."

Professor A. Lobanov-Rostovsky, University of Michigan—"Russia and the Balkan Slavs."

General Bruno S. Bosy—"Political Developments in Czechoslovakia up to 1948."
Dr. S. A. Czako, late of the Budapest University of Economics—"Cultural Achievements of Hungary between the World Wars."
Professor M. Karpovich, Harvard University—"Mickiewicz and Pushkin—Two National Poets."
Professor L. I. Strakhovsky—"The Great Russian Novelists" (a series of nine weekly public lectures).

BENEFACTIONS

Set out hereunder is a list of gifts and grants made during 1949-50, which amount to $1,235,605.81. The list of donations from corporations and individuals for specific and general purposes manifests an encouraging appreciation on the part of donors of the need of the University for assistance from sources other than governmental.

The progress of the University is due not only to the support that it receives from the provincial Government. It is a stronger institution by reason of public and private support. To the donors we gratefully express the gratitude of the University and all its members, and we pledge ourselves to use their gifts with the highest sense of trusteeship for the benefit of gifted and promising youth, for the advancement of knowledge and wisdom, and for the building of a finer nation.

Defence Research Board, Research Grants		$441,752.50
National Research Council, Research Grants		220,802.91
Anonymous donors		
Helen L. Vanderveer Fellowship—Medicine	$50,000.00	
Mary Keenan Award	200.00	
Urwick Prizes	50.00	
Graduates' Scholarships—Law	30.00	50,280.00
Estate of the late Mrs. Helen Shepard		
Anne Shepard Memorial Scholarships		50,000.00
National Cancer Institute of Canada		47,161.11
Research Council of Ontario		44,500.00
Rockefeller Foundation		
Slavic Studies	19,479.56	
School of Hygiene Medical Care Administration—6	8,500.00	
Laboratory of Experimental Clinical Neurology	8,000.00	
School of Hygiene Nutrition Survey—1	6,839.70	
H. Mehlberg	1,650.00	44,469.26
Dr. W. B. Boyd Estate—W. B. Boyd Memorial Fund		18,463.90
Government of Canada		
School of Social Work	10,000.00	
Agriculture—Pyrethrin and Related Insecticides—Wright	7,000.00	17,000.00
Banting Research Foundation Grants—		
Medical Research Banting	15,000.00	
Haist	900.00	
Wright	500.00	16,400.00
Institute of Industrial Relations, various donors		14,270.00
Estate of Mary Jane Felker, residual bequest for research		13,880.09
W. K. Kellogg Foundation		
Course in Hospital Administration	8,775.16	
Dentistry—Graduate and Postgraduate Education	5,059.63	13,834.79
Central Mortgage and Housing Corporation		
School of Architecture Research Project	4,350.00	
School of Social Work Research Grant	9,000.00	13,350.00
Province of Ontario		
School of Nursing Building Fund	10,000.00	
Archaeological Research—McIlwraith	3,000.00	
Faulkner Medal—Psychology	35.00	13,035.00

Nutrition Foundation Incorporated		
Best	7,950.00	
Baer	3,850.00	11,800.00
Estate of Colonel R. W. Leonard		
Bequest	6,799.99	
R. W. Leonard Fellowships and Scholarships	4,850.00	11,649.99
National Foundation for Infantile Paralysis Incorporated of the United States Fund—Solandt		9,269.70
Lady Davis Foundation		
Mathieson	5,000.00	
Lorenz	2,500.00	
Martius	1,500.00	9,000.00
William Pakenham Fellowship in Education		8,723.62
Jessie M. Niven Estate, Medical Research		6,663.11
Imperial Oil Limited		
Fellowships	3,375.00	
Scholarships	3,250.00	6,625.00
Spruce Falls Power and Paper Company Limited Fellowships		6,000.00
Dr. Neil B. McGillivray Estate, Medical Research		5,000.00
E. R. Squibb Institute, Research, Cardiac Irregularities		5,000.00
Dr. Chant Donation		4,644.25
Algoma Ore Properties Limited, Scholarships		4,600.00
John Labatt Limited		
University Extension, Course in Safe Driving		4,596.80
Canadian Life Insurance Officers Association Grant—		
The Process of Ageing—Best		4,500.00
Robert Gould Research Foundation Grant		4,400.00
P. Hermant, Esq.		
Percy Hermant Fellowships	3,500.00	
Percy Hermant Scholarships	600.00	4,100.00
Estate of Dr. J. S. Chisholm, Chisholm Memorial Fund		4,000.00
Ethiopian Government—Ethiopian Students' Fund		3,739.50
Ontario Cancer Treatment and Research Foundation		3,400.00
Illuminating Engineering Society Research Fund		3,300.00
Snyder Ophthalmic Foundation—Dr. H. L. Ornisby		3,300.00
Norma Epstein Foundation Fund		
Silknit Limited	2,000.00	
M. H. Epstein	1,000.00	3,000.00
Charles E. Frosst and Company		
Frosst Fellowship in Medical Art	2,000.00	
Charles E. Frosst Scholarship—Medicine	250.00	2,250.00
Estate of Christina C. Niven—Medical Research		2,131.09
Ontario-Minnesota Pulp and Paper Company Limited, Bursaries		2,000.00
Estate of Lillian Massey Treble, Lillian Massey Treble Bequest		1,876.38
Robert Simpson Company Limited		
The Simpson Scholarships	1,080.00	
Matriculation Scholarships, Northern Ontario	750.00	1,830.00
Carnegie Corporation, Professor Feiling		1,800.00
Canadian Breweries Limited, E. P. Taylor Fellowship—		
Ophthalmology		1,800.00
The H. S. Robertson Scholarship		1,700.00
Dow Chemical Company Research Fellowship		1,650.00
J. H. Gundy, William E. Wilder Fellowship		1,500.00
C. W. and Miss D. Edmonds—Harold S. Edmonds Memorial Fund		1,500.00
Mrs. E. J. Urwick		
Urwick Bursaries	1,200.00	
Edward J. Urwick Scholarship	300.00	1,500.00
Canadian Industries Limited		
C.I.L. Fellowship in Chemistry		1,250.00
Consolidated Mining and Smelting Company of Canada Limited,		
Cominco Research Fellowship		1,200.00
Medical Alumni Association Scholarships		1,200.00
S. S. Kresge Company Limited, Kresge Fellowship		1,200.00

Swift Canadian Foundation Fellowship		1,200.00
T. Eaton Company Limited		
The Margaret Eaton Scholarships in Physical and Health Education	1,000.00	
Sir John C. Eaton Memorial Scholarship—University Schools	120.00	1,120.00
Shell Oil Company of Canada Limited		
Shell Oil Company Research Fellowship		1,012.00
James William Woods Fellowships—Business Administration		
Gordon MacKay and Company Limited	500.00	
York Knitting Mills Limited	500.00	1,000.00
Dr. A. E. MacDonald		
The Alexander E. MacDonald Library Fund—Ophthalmology		1,000.00
The W. F. MacKay Medal—Political Science and Economics		1,000.00
Canadian Institute of Steel Construction Fellowship		1,000.00
Joseph Yolles—Louis Yolles Memorial Fund in Cardiology		1,000.00
Ontario Community Chests Scholarships		950.00
Royal College of Dental Surgeons		
Dental Library, Harry R. Abbott Fund	400.00	
Dental Research Fund	300.00	
James Branston Willmott Scholarship	250.00	950.00
Aviation Medicine—Ferguson		900.00
Ayerst, McKenna and Harrison Limited		
Pharmacology Research, Antabuse—Ferguson		800.00
Ladies' Auxiliary Academy of Dentistry Fund		846.43
T. A. Russell Research Fellowship		
Canada Cycle and Motor Company Limited	397.00	
Canada Acme Screw and Gear Limited	397.00	794.00
Bloor District Business Men's Association Inc. Award		750.00
Kennecott Copper Corporation Scholarship—Mining Engineering		750.00
B. Sadowski, Esq.		
Scholarships	500.00	
Bursary—Social Work	250.00	750.00
George L. Gray Esq.		
Duncan and John Gray Memorial Lectureship—History	590.00	
John Fraser Gray Scholarship	125.00	715.00
Pan-Hellenic Association of the University of Toronto		
Scholarships	540.00	
Prizes	150.00	690.00
Students' Administrative Council Scholarship, Matriculation		600.00
Various donors—Forestry War Memorial Plaque Fund		547.50
University College Alumni Association		
Maurice Hutton Matriculation Scholarship	150.00	
Matriculation Scholarships	350.00	
Prize	25.00	525.00
Hydro Electric Power Commission of Ontario Grant		
Relief Model—Jackson		522.16
Professor E. G. R. Ardagh Prize—Chemical Engineering		500.00
Professor Gilchrist, Garnet W. McKee—Lachlan Gilchrist Loan and Scholarship Fund		500.00
Famous Players Canadian Corporation Scholarship—Medicine		500.00
International Nickel Company of Canada Limited, Inco Scholarship		500.00
Massey Harris Company Limited Scholarships—Mechanical Engineering or Engineering and Business		500.00
G. Roy Sproat and Katherine Sproat Bursary Fund—Medicine		500.00
Faculty of Music Student Assistance Fund		
Heintzman and Company Limited	100.00	
Canadian Music Sales Corporation Limited	100.00	
Waterloo Music Company	100.00	
Dr. L. R. Bell	100.00	
Gordon V. Thompson Limited	100.00	500.00

J. B. Tyrrell Fellowship		500.00
Dr. W. Cecil Leggett, Leggett Research Fund—Dentistry		500.00
Scottish Rite Masons of Toronto Bursaries		500.00
Pharmacology Trust Fund, various donors—J. K. W. Ferguson		465.00
Estate of Mrs. Jean Glasgow, John Macara, Barrister of Goderich, Scholarship		450.42
Family of the late Sir Edmund Walker, Scholarship		450.00
Forest Industries Entomological Scholarship		
Canadian Lumbermen's Association	200.00	
Canadian Pulp and Paper Association	200.00	400.00
Toronto Joint Board of Amalgamated Clothing Workers of America—Sidney Hillman Memorial Award		400.00
Dr. C. G. McCullagh, Scholarships in Philosophy		400.00
Brunner Mond, Canada, Sales Limited Fellowship		364.62
B'nai B'rith Toronto Lodge Scholarships		350.00
Eastern Steel Products Limited Awards—Mechanical Engineering		350.00
Miss Elsie Watt, the Watt Scholarship		312.50
Estate of the late Robert Bruce—Robert Bruce Scholarship		308.44
Engineering Alumni Scholarship Committee, Class of 1950 Engineering Entrance Scholarship		300.00
Dental Company of Canada Limited, the Henry Thompson Scholarships—Dentistry		300.00
Oral Health Magazine		
Oral Health Thesis Prize No. 1.	100.00	
Oral Health Thesis Prize No. 2.	50.00	
Wallace Seccombe General Proficiency Prize	150.00	300.00
Hobbs Glass Limited, Scholarship in Glass		300.00
Boiler Inspection and Insurance Company of Canada Scholarship		300.00
Ash Temple Company Limited, the H. F. Temple Scholarship—Dentistry		300.00
Delta Delta Delta Bursary		300.00
Mrs. E. L. Chudleigh, Edward Logan Chudleigh Research Fund Medicine		300.00
The O'Keefe Brewing Company Limited, the O'Keefe Award in Commerce and Finance		250.00
Ontario Forest Industries Association Scholarship—Forest Entomology		250.00
Fred Orpen Award		250.00
Robert A. Bryce Esq., Engineering Scholarship—University of Toronto Schools		250.00
Price, Waterhouse and Company, Edwin Waterhouse Scholarship —Commerce and Finance		250.00
Irish and Maulson Limited, W. G. Millar Memorial Scholarship —Applied Science		250.00
Raymond Allen, the J. J. Allen Award—Arts and Medicine		225.00
Mrs. R. E. and Dr. John Gaby, Robert Edward Gaby Scholarship —Surgery		200.00
P. C. Armstrong, the Armstrong Prize		200.00
Clarkson, Gordon and Company Limited, Clarkson Prizes in Accounting		200.00
Delta Phi Epsilon Sorority, Zeta Chapter of Toronto Jewish Women, Bursary		200.00
Estate of Janet Colquhoun, the Arthur Hugh Urquhart Colquhoun Library of Canadian History		200.00
Jenkins Brothers Limited Scholarship—Engineering		200.00
Kiwanis Club of West Toronto Bursary		200.00
Merck and Company Limited Donation—Dentistry Special Reprints		200.00
National Council of Jewish Women Scholarship		200.00
Harry S. Parkinson Bursary—Law		200.00
School of Social Work Alumni Scholarship		200.00
University College Literary and Athletic Association—New Residence Library Donation		200.00
Sigma Alpha Mu Scholarship Fund		
The Lou Somers Scholarship—Commerce and Finance	100.00	
Alex Garalick Scholarship—Premedical Course	100.00	200.00

Toronto Brick Company Limited Prizes—Architecture		200.00
The A. E. Wicks Research Donation—Forestry		200.00
Jule Allen Award—Arts		150.00
Mrs. Allen H. Burgess and Family, Douglas M. Burgess Memorial Scholarship		150.00
Dental Students' Parliament Prizes—Dental Surgery		150.00
Masaryk Memorial Hall Incorporated Scholarships		150.00
Louis Rosenfeld Award		150.00
University of Toronto Schools Parents' Association Scholarships		150.00
University of Toronto Schools Old Boys' Association Scholarship		150.00
Bequest of the late George Kennedy, M.A.		
George Kennedy Scholarship	65.22	
Sarah Kennedy Scholarship	65.22	130.44
Various donors —Hugh Gall Award		110.00
William Lowell Putnam Prize Fund—Mathematics		109.82
Dr. Arthur A. Brant—		
W. J. Loughead Prize in Upper School Mathematics	50.00	
J. G. Workman Prize in Middle School Mathematics	50.00	100.00
Academy of Dentistry Prize		100.00
Class of Medicine 1924, Meds 2T4 Scholarship		100.00
Dr. Marion Hilliard, Dr. Gwen Mulock Scholarship—Social Work		100.00
University College Alumnae Association Scholarship		100.00
Ontario Association of Architects Scholarship		100.00
University of Toronto, Engineering Society Loan Fund		100.00
Phi Delta Epsilon Medical Fraternity Bursary—Obstetrics and Gynaecology		100.00
Posluns Brothers Scholarship—Medicine		100.00
Toronto Stock Exchange Prize, Corporation Finance—Commerce and Finance, Political Economy		100.00
White Pine Bureau Scholarship—Forestry		100.00
Dr. E. W. M. Howes Bursary, University College		90.00
University Chemistry Club Bursary		75.00
Hon. Dr. H. J. Cody—		
Henry John Cody Scholarship—University College	17.26	
Florence Cody Memorial Scholarship—University College	17.26	
Maurice Cody Memorial Prizes—University Schools	24.50	59.02
Mrs. James Home Cameron, Cameron Prize, University College		50.00
Chemical Institute of Canada Prize		50.00
Graduate Class of 1930 Mathematics and Physics and Associated Courses, Class of 1930 Mathematics and Physics Bursary		50.00
Dominican Republic, Dominican Republic Prize—Spanish		50.00
Theatre Holding Corporation Limited, Hollywood Theatre Prizes in French		50.00
Dr. L. J. Fenech Prize in Endodontia		50.00
Order of the Sons of Italy of Ontario Prize		50.00
Pi Lambda Phi Fraternity, Kappa Chapter, Pi Lambda Phi Daniel L. Jacobs Memorial Prize		50.00
Public Speaking Association Bursary		50.00
The R. A. Reeve Prize		50.00
Giant Yellowknife Gold Mines Limited, Geochemical Laboratory Fund		50.00
Dr. John Sheehan, Chappell Prize		25.00
American Society of Heating and Ventilating Engineers, Ontario Chapter Prize—Modern Engineering		25.00
Engineering Institute of Canada Prize		25.00
International Accountants' and Executives' Corporation of Canada Bursary		25.00
Ontario Medical Association Prize—Preventive Medicine		25.00
Psychology Club Bursary		25.00
British Association for the Advancement of Science Fund		12.43
French Club of University College, Alfreda Cole Memorial Prize		10.00
Professor J. G. Breckenridge, Canadian Institute of Chemistry, Toronto Branch Commemoration Fund		7.03
		$ 1,212,150.81

Royal Ontario Museum

Canadian Breweries Limited, Carling Conservation Club		10,500.00
Dr. Sigmund Samuel, Archaeology—Special Account for Canadiana Gallery		4,500.00
Archaeology Special Account		
Laidlaw Lumber Company for Furniture Collection	$ 2,300.00	
Anonymous	550.00	2,850.00
Lady Davis Foundation—Archaeology Special Account for Fellowship to Dr. Borowski		2,500.00
City of Toronto		
Saturday Morning Club	500.00	
Summer Museum Club	500.00	1,000.00
Archaeology Membership Account		
R. A. Laidlaw Esq.	500.00	
Various	310.00	810.00
Archaeology, Ontario Textile Fund—		
Brook Woolen Company Limited	150.00	
Penman's Limited	150.00	
Eaton Knitting Company Limited	150.00	
Guelph Yarns Limited	15.50	465.50
Mrs. Edgar Stone		
Archaeology, Specific Archaeological Material	320.00	
Archaeology Publications Account	100.00	420.00
Archaeology Publications Account		
Clarke Irwin and Company Limited	50.00	
Ryerson Press	50.00	
Musson Book Company	50.00	
Macmillan Company of Canada Limited	50.00	
S. J. Reginald Saunders	50.00	
Oxford University Press	25.00	275.00
Guelph Yarns Limited		
Archaeology Publications Account, Textiles		134.50
		$1,235,605.81

CONCLUSION

There is always the temptation for the academic administrator to think that his work is *the* main purpose, rather than *for* the main purpose, of the university which he serves; for the teacher to regard study and research on his narrow segment of knowledge and wisdom as supreme to the exclusion of the endeavours of workers in other fields; and for all the staff to believe that curricula and syllabi are ends in themselves. If these attitudes prevail, we may lose sight of the end products of the university—the students. Under a totalitarian régime, teachers are under compulsion to produce a uniform type of student who is trained in a regimen of unthinking obedience. Under a democracy, teachers are charged with the responsibility of developing each student according to his or her talent and aspiration.

The programmes and policies referred to in this Report, though multiple and diverse, are not like the scattered pieces of a jig-saw puzzle that never can be fitted into a coherent whole. By reason of the common traditions and experience of universities and in the light of its own growth, the University of Toronto endeavours to hold high for its students ideals of the free mind and the free spirit. That is not a rhetorical flourish. Thousands of graduates over a century and more would say of their Alma Mater what Sir Henry Newbolt wrote of Clifton Chapel:

> Here, my son,
> Your father thought the thoughts of youth
> And heard the words that one by one
> The torch of life has turned to truth.

It may be paradoxical to propose that no graduate should ever say that he was educated at the University of Toronto. It is nevertheless true. Education is a continuing process. It is never completed. A graduand is unworthy on Convocation day of the Chancellor's accolade if he boasts, "Now, I am educated." Happy is the university that leaves at the first-mile post on that day its sons and daughters, imbued with humility and with the zest to follow the road charted by their teachers, which leads forward and upward to beckoning peaks of knowledge and wisdom. I recently read of a candidate for a doctorate who in 1650 stood before a row of examiners of the University of Avignon. While recognizing in him first-class ability, they realized that he had failed to resist the temptations, whatever they were in 1650, of easy living. After much deliberation the examiners admitted him to the doctoral degree with the following notation, *sub spe futuri studii*—in the hope of future study. That condition subsequent has really been implicit in every diploma of the University of Toronto.

If a graduate of ten or more years' standing were to return for the first time to the University, he would find much that is old and many things that are new. He would see old teachers, he would mourn the passing of others, and he would meet new members of the staff. There would be for him a mingling of the familiar and the strange, the traditional and the modern that must always characterize a growing and a progressive university. Believing in the ideals of its founders and builders, I hope that the readers of this Report, like the returning graduate, would faithfully invoke the epigram, *Plus ça change, plus c'est la même chose.*

I am encouraged for the future of the University of Toronto by my knowledge of the devotion and vision of my colleagues; the fine calibre of students; the loyalty of graduates; and the enlightened and wise policies of Councils, the Senate, the Chancellor, the Chairman and members of the Board of Governors.

Sidney Smith,
President

REPORTS

Report of the Dean of the Faculty of Arts

A fair indication of the attendance for the year is supplied by the numbers of students qualifying for degrees, namely 800 in the Pass and General courses, and 600 in the various honour courses.

A fortunate feature of the system of honour courses is the provision for transferring to the Pass or General courses students who do not quite reach the prescribed standard. It might, indeed, be argued that the only real hardship is in the General Course itself. Here supplementals are not permitted as they are in the Pass Course and in pass subjects attached to honour courses, and the possibility of transfer does not exist. The committee of review was successful, as in the preceding year, in securing a large measure of uniformity in the recommendations of committees of examiners in honour courses, largely by urging that the regulations of the Calendar should be followed as fully as possible.

It now seems fairly certain that the new general course will commence in the first year of the session 1951-2. In full operation it will replace the present Pass and General courses. Its distinctive features are that it provides in the first year a basic training in the principal intellectual disciplines and demands in the second and third years a measure of specialization which is likely to improve the tone of the work, particularly since honour standing will be required in the special subject chosen.

The new Chemistry building was in use throughout the whole year and provided exceptional facilities for teaching and research.

Research is gradually coming to play a larger part in the activities of the staff and in the instruction provided for advanced undergraduates.

S. Beatty

Report of the Principal of University College

As the statistical report indicates, the registration in the College in the current session shows a decrease of almost 400 from that of the last session. However, the growth in the number of students pursuing graduate studies, and the increase in teaching services to the schools and faculties of the University have more than counterbalanced any relief afforded by the reduction in the number of undergraduates. It must be noted also that a shrinkage in the volume of the latter body does not imply a proportionate shrinkage in the work of our departments, since the lecture schedules remain as they have been. The staff now consists of 78 members inclusive of 22 teaching fellows and instructors, but it seems inevitable that the institution of the new general course will involve fresh additions to the membership of our larger departments.

The following changes took place this year in our staff: Professor W. H. Clawson, B.A. (N.B.), M.A., Ph.D. (Harv.), after forty-three years of scholarly service to the Department of English, retired; M. Michel Sanouillet, L. ès L., Dip. d'E. S. (Sorbonne), and Mr. Ronald Shepherd, B.A. (Camb.) were appointed to lectureships in the Departments of French and Classics respectively; Professor René Bray, the distinguished Professor of French Literature at the University of Lausanne, Switzerland, was Visiting Professor in the Department of French during the second term. The following promotions have been recorded: Associate Professor C. D. Rouillard to a Professorship in the Department of French; Lecturer C. W. Dunn to an Assistant Professorship in the Department of English. Leave of absence was given to the following: Professor J. G. Andison, to act

as Head of the Department of French in the University of British Columbia for the session 1949-50; Professor C. D. Rouillard, for the second term, to continue his work in France on the influence of the Muslim world on French thought; Professor E. A. Dale, for the second term, to pursue at Oxford University some extensive study in the field of classical literature; Professor Barker Fairley, for the latter part of the second term, to deliver lectures on Goethe in several university centres in England and to receive an honorary doctorate from the University of Leeds; Professor H. S. Wilson, for the session, to accept a research fellowship at the Huntington Library, California; Professor F. E. L. Priestley, for the session, to accept a Nuffield Fellowship for study and research in England; Professor A. S. P. Woodhouse, for the latter part of the second term, to deliver a special course of lectures in the University of London; Professor F. V. Winnett, for the session 1950-1, to accept the Directorship of the American School of Oriental Research in Jerusalem.

In the annual public lecture series of the College three lectures were delivered in the Michaelmas term by distinguished graduates of the College: November 4, "The Romance of Higher Education in Canada," by the Honourable and Reverend H. J. Cody, C.M.G., LL.D.; November 11, "On the Way to Greatness," by Mrs. R. F. McWilliams, D. Litt.; November 25, "The Basis of the Canadian Standard of Living," by Mr. B. K. Sandwell, LL.D., D.C.L. Four lectures in the same series were delivered in the Easter term by members of the staff: January 19, "The Framework of *The Canterbury Tales*," by Professor W. H. Clawson; January 26, "George Buchanan," by Mr. D. F. S. Thomson; February 2, "Final Causes in the Age of Reason," by Professor R. F. McRae; February 9, "Le Génie français dans le miroir de la littérature classique," by Professor René Bray.

The twentieth course of the Alexander Lectureship was delivered in Hart House Theatre from November 14 to 17 by Professor E. K. Brown, of the University of Chicago, on the subject of "Rhythm in the Novel" treated under the following heads: (i) "Phrase, Character, Incident"; (ii) "Expanding Symbols"; (iii) "Interweaving Themes"; (iv) "Rhythm in E. M. Forster's *A Passage to India*."

During the session, our library and reading room rendered its usual service to the students and continued thereby to assist in relieving the heavy demands on the University Library. As in the other post-war years, it was open from 8:45 A.M. to 10 P.M. daily except on Saturday, when the hours were from 8:45 A.M. to 12 noon. Miss V. Taylor, B.A., the Librarian, has submitted the following report on the circulation of books:

Books used in the reading room	28,003
Books loaned for overnight	17,438
Books loaned for a week	497
Books loaned for the Christmas vacation . . .	705
Total circulation	46,643

The decrease in circulation from that of the last session is 12.7 per cent. This decrease is partly accounted for by the increasing number of books made available to our students on the open shelves. It is to be noted also that there was an increase of 5.6 per cent in the 6-10 P.M. circulation. Miss Mary Clemes, B.A., and Miss Judith Baker, B.A., were assistants to the Librarian.

The Dean of Women reports as follows: "The enrolment figures for women over the last three years show the anticipated decline: 861, 793, 711. The reduction may be explained in part in terms of ex-service numbers—61 last year, 22 this—and applies almost entirely to out-of-town students, Toronto students numbering 396 and 391. The fact that first-year numbers—254, 211, 213—were uniform last year and this may mean that a normal level of new enrolment has been reached. The number of women withdrawing in course happily also shows a decline—110, 91, 75—although this measure of wastage still gives cause for concern.

"The most significent feature of the past year has been the high level of scholarship of the first-year class. Twenty-seven of the thirty-seven matriculation awards, including the Malcolm Wallace and the Prince of Wales, were won by women. The May examination results give further evidence of the presence of unusual ability, as follows:

	Firsts	Seconds	Failures
1948	6.4 %	43.49 %	5.58 %
1949	7.98 %	43.67 %	5.32 %
1950	9.73 %	46.12 %	4.65 %

The Residences continue to maintain a position well above the College average, as follows:

1949	8.58 %	45.22 %	2.97 %
1950	10.42 %	47.57 %	2.08 %

"The Residences have been filled to capacity (295), a capacity reduced by the removal of some bunk beds. All but 5 residents were University College students. New seating has been completed in the theatre and the dining room of the Women's Union, new lighting installed in the former and new tables in the latter. A handsome combination radio and record player was presented by the Women's Undergraduate Association, and another record player by the residents."

Dean Bissell submits the following report: "The total number of students in residence at the University College men's residences during the academic year 1949-50 was 89; 39 were given accommodation at 73 St. George Street, and 50 at Holwood Hall. Until the new University College Men's Residence is built, this will be the maximum number that can be accepted for residence. Holwood Hall, during the first two years of its occupation little more than a dormitory, has become, with the reduction in numbers, a genuine residence. The major concern now is not to find accommodation for all students who would like to live in residence (an insoluble problem given our present facilities), but to concentrate on forming a nucleus of first-class students who will bequeath a spirit and a tradition to the new residence. There have been many indications during the year that such a tradition and such a spirit are being developed. Each of the two houses has made its own individual contribution: 73 St. George continues to be a stronghold of scholarship, especially in the humanities, and a beneficent force in the social and cultural life of the College; Holwood Hall has played an increasingly significant role in student government and in College athletics. Although members of both residences have participated in common activities, it is true, nevertheless, that they tend to exist as separate entities. Their physical separation alone would lead naturally to this development. Not the least of the benefits arising out of the building of a new residence will be the opportunity thereby provided to create a centralized and well-integrated college life on the campus.

"An activity during the year that merits particular mention was the weekly informal seminar held in the Don's room at 73 St. George to which members of the faculty and College graduates were invited as guests. This is by no means a new departure at 73 St. George, but this year it was organized and conducted with unusual success by the Don, Mr. Gordon McCaffrey. To attend one of these informal seminars is to be reassured that a residence provides an invaluable complement to the classroom, and that ideas can be even more exciting to the undergraduate than football games and pep rallies."

The following recommendations were submitted on behalf of the student committees on athletics by the respective directors, Miss R. Kelly and Mr. George Wallace: (*a*) that the attention of the Board of Governors should be drawn to the desirability of appointing to the staff of the College a person whose duties, in whole or in part, would be the supervision and promotion of athletics in the College; (*b*) that the proper University officers be requested to organize for the

women of the various colleges and faculties an annual competition comparable to that of the men for the T. A. Reed Trophy.

The College gratefully acknowledges the receipt of special gifts from the following donors:

The estate of the late Helen Shepard; bonds of the value of $50,000 to provide scholarships in Biology in University College to be known as the "Ann Shepard Memorial Scholarships" in memory of Mrs. Shepard's daughter.
Mr. M. H. Epstein; $3,000 to increase the capital sum of the Norma Epstein Foundation for awards in Creative Writing. ($2,000 from Silknit Limited and $1,000 a personal cheque.)
Professor G. G. Cosens; $1,000 to be added to the capital sum of the Bessie Griffith Cosens Scholarship. (Capital sum now $5,067.50.)
The Robert Simpson Company, Limited; a cheque in the amount of $1,080 to cover the six Simpson Scholarships for the current year.
Mr. W. F. MacKay of Cleveland; $1,000 for the establishment of the W. F. MacKay Medal to be awarded to a student of the fourth year in Political Science and Economics who has elected courses in International Relations.
The Zonta Club; $400 for women students, $200 of which is for the maintenance of a displaced women student from Europe.
The Toronto Lodge, No. 836, B'nai B'rith; two scholarships of the value of $250.
The Pan-Hellenic Association; $540 to cover the three scholarships of the third year in Art and Archaeology, Psychology, and Modern Languages.
The Pan-Hellenic Alumnae; $100 for dishes in the kitchenette off West Hall.
The Pan-Hellenic Alumnae; $145.93 for a trophy case to be erected for the display of trophies won by the women of University College.
The Pan-Hellenic Association; an athletic cup for the woman student in University College who contributes the most to College sports.
The Literary and Athletic Society; $200 toward the library in the proposed University College Men's Residence.
The Toronto Alumnae Chapter of the Delta Delta Delta Fraternity; a bursary of $75 for a girl student in University College.
The Active Chapter of the Delta Delta Delta Fraternity; a bursary of $150 to a woman student in University College.
The Zeta Chapter of the Delta Phi Epsilon Fraternity; a bursary of $100.
Dr. E. W. M. Howse; a bursary of $90.
The Public Speaking Association; a bursary of $50.
The Alpha Epsilon Phi Fraternity; the Norma Epstein Bursary of $50.
Mrs. J. M. Godfrey; $50 for an award in Creative Writing.
The University College Alumni Association; $50 towards the cost of the University College Fall Convocation.
The University College Alumni Association; a cup for basketball.
Mr. H. V. Hearst; an athletic trophy for the student with the best record in indoor track events.
Mr. R. O. Daly, K.C.; a prize of the value of $50 for French 1c.
Mr. S. Allen; a cheque for $50 to cover the Hollywood Theatre prizes in Pass and honour French.
Mrs. J. Home Cameron; a prize in French of the value of $25.
Mrs. G. L. Gordon; the Rose Shendroff Prize of $10 in books.
Mr. H. A. C. Breuls; a gold medal to be awarded to a fourth-year student in Political Science and Economics.
The International Accountants' and Executives' Corporation of Canada; a bursary of $25.

The College also gratefully acknowledges special gifts to the Archives of the College from the following donors:

Mr. Norman Wickson, a painting of his grandfather, the Reverend Arthur Wickson, the first Registrar of King's College.
Mrs. Norman Wickson, the Year Book of the Toronto Grammar School, 1807-97.
Miss Smith of Port Elgin, a picture of the executive of the Non-Hazing Union of 1890.
The Reverend Harvey Grant, a picture of the graduating class of 1889.
Mr. H. S. Robertson, Perth, Ontario, a copy of the sheet of hymns used at the funeral service of Professor George Paxton Young, LL.D., in 1889.
The Registrar of the University, copies of the drawings of University College.

W. R. Taylor

Report of the Dean of the Faculty of Medicine

To read the reports from seventeen departments and from various student societies is to receive once again a stimulating impression of the scope and vitality of the work being carried on in the many divisions of the Faculty of Medicine. We read on the one hand of involved fundamental research which may influence the lives and happiness of all mankind, or which may only add in a small measure to the sum total of human knowledge. On the other hand there are such widely diversified notes as the interest of the Department of Paediatrics in school meals for children, the interest of the Department of Psychiatry in industrial relations, the survey of certain types of blindness by the Department of Ophthalmology and the work of the Department of Oto-Laryngology in rehabilitation of the deaf.

At the Convocation for the Faculty of Medicine, Dr. Earl Scarlett, a graduate of this school of the year 1924, who practises in Calgary, delivered the address. One hundred and fifty-nine received the degree of M.D. and 9 graduates the degree of B.Sc.(Med.).

The year has again been a busy and stimulating one. Our registration continues in the neighbourhood of 1,000, including the two premedical years. The school now has the doubtful distinction of being the largest medical undergraduate training centre on the continent. We again took 150 in the first of the premedical years. Five years after the war there are few veterans seeking admission, but there are still large numbers in the upper years. The class graduating this year was largely made up of veterans. Certainly these men were, in the opinion of their teachers, further evidence of the justification of government ex-service policy. Matured by their experience, these students possess a firm resolve to prepare for professional life.

In the writings of American educators, one reads of the steadily rising costs of medical education in the United States. Fees, large as they are in relation to other faculties, can account for only a fraction of the annual cost per student in the overall budget. In certain American schools this figure is as high as $3,500. The annual cost per student in our own school does not approach that figure, but even so the annual fee paid by the student covers only about 35 per cent of the budget. The average student in Toronto needs about $1,200 to see him through each of the four professional years. Many are able to contribute a considerable amount by earning in the long vacation, but there still remains a varying deficit which must be met either from parents or friends, or from bursaries or loan funds. The University, recognizing this problem, has made available a bursary fund of considerable proportions. Likewise, the Dominion-provincial bursary fund gives valuable aid. The duties of the Faculty Loans and Bursaries Committee are increasingly heavy, as they must do the best they can with the funds available, to see that they are distributed to the most deserving students. With a steadily increasing proportion of students who are not in receipt of D.V.A. benefits, this task will be all the heavier in future years. It is obvious that if we are to get the best students, particularly from districts outside the Toronto area, consideration will have to be given to liberal maintenance bursaries. Otherwise it would seem impossible for the sons of artisans and farmers in country areas to contemplate professional medical training. The student who lives within daily travelling distance of the University has a great financial advantage, in that bed and board are provided by his parents in his own home.

In undergraduate affairs, something new was added to the usual programme of social events by the institution of a general social gathering for all the faculty and other members of the University. It has been called "Panacea" and apparently justified fully the efforts of the Medical Society. A new publication called *Palinodia,* describing the life and activities of the Faculty, appeared this spring. It is largely a pictorial review and is extremely well done. It is hoped that it may be continued.

The medical journal grows in volume, circulation, and the quality of the contributions. Large numbers of students have taken part in the interfaculty sports and some twenty odd have represented the University on its senior teams. The President of the Medical Society was selected as the President of the Students' Administrative Council. In spite of his varied duties he has attained first-class honour standing and has been selected as one of two Rhodes Scholars from the Province of Ontario.

On July 1, 1950, the Faculty of Medicine assumed responsibility for the administration and teaching in the courses of Physical Therapy and Occupational Therapy. This decision was reached following several meetings of the Faculty. It has been thought wise to reorganize completely the curriculum and present a new combined course. This will be offered for the first time in the autumn of 1950. Students previously enrolled in the diploma courses which have been administered by the Department of University Extension will complete their course according to the old curriculum. New students will be eligible for a diploma in Physical and Occupational Therapy in three years. A committee under the chairmanship of Dr. Botterell has laboured long and faithfully during the winter months and it is hoped that the graduates from the new course will find an increasingly important role and responsibility in the field of convalescent therapy and rehabilitation. Dr. Andrew Zinovieff has recently come to us from Oxford, England, where he was in charge of the physical medicine and rehabilitation unit there. He will have the responsibility for directing this pioneer effort.

Graduate work continues to be an important part of the work of the school. This will be immediately apparent when one reads the reports of the various departments. The programmes in the various clinical specialties which were strengthened and extended in the years immediately after the war are providing a steady supply of young specialists who go out to all parts of Canada. The federal health grants have been of particular value in the field of Psychiatry and Public Health. Psychiatry is hampered still by inadequate accommodation, both for in-patients and out-patients. Government aid, on an annual basis, liberal though it may be, carries with it a considerable degree of administrative frustration, and, like all grants of this nature, makes for difficulty and insecurity in long-term planning.

It is gratifying to record that the new Hospital for Sick Children will be ready for occupancy during the coming academic session. Large lecture rooms fitted with the most modern projection apparatus, new and spacious laboratories—all these will facilitate the work of teaching and research. The Western and St. Michael's Hospitals are also in the midst of making further extensions. All this serves to underline the urgent need for increased student facilities and a general modernization programme at the Toronto General Hospital.

The annual refresher courses, both for specialists and for general practitioners, continue to attract large numbers of students. The short course, sponsored by the Alumni, will this autumn be combined with the course previously sponsored by the Ontario Medical Association.

The Alumni Association continues to give active support to the school. The number of scholarships has again been increased, so that there is at present an Alumni Scholarship in each of the six years, as well as four bursaries of $100 each available in the medical years.

The Alumni Association was again host to the members of the graduating year, and to those members of the class of 1900 who could attend, on the eve of graduation. Professor Chassar Moir was the guest speaker and the dinner, held in the Great Hall of Hart House, was a memorable occasion.

Several members of the Faculty have retired from the active teaching staff. Professor H. B. Van Wyck, who has for the past four years directed with signal success the Department of Obstetrics and Gynaecology, will be succeeded in that chair by Dr. Douglas Cannell. Dr. Cannell, who previously has been a member of the Toronto Western Hospital staff, will be transferred to the Toronto General Hospital,

where he will become Obstetrician and Gynaecologist in Chief to that Hospital. Dr. Van Wyck will continue to be a member of the Faculty as a lecturer in the Humanities in Medicine, a course in which he has collaborated during the past two years with Professor Wasteneys. We are delighted that he has agreed to continue this brilliant lecture series.

Dr. Harold Wookey retires from the post of Associate Professor and director of the surgical service on Ward B of the General Hospital, but will continue to give the benefit of his long experience to the cancer follow-up clinic in the Dunlap Building. It is hoped that some arrangement may be made whereby the knowledge and experience of such men may continue to be utilized in postgraduate teaching. Some men may be ready and anxious to be relieved of their major teaching responsibilities at the age of sixty, but many are strong and vigorous and their experience as teachers and specialists should not be entirely lost to the school.

Other retirements include those of Dr. C. A. Rae and Dr. A. H. Veitch in the Department of Oto-Laryngology, and Dr. Gordon Bates, Dr. E. A. Broughton, Dr. E. J. Trow, and Dr. G. F. Boyer in the Department of Medicine. Dr. W. L. Robinson has also retired from his University post in the Department of Pathology.

Professor R. B. Kerr, who has been in charge of Therapeutics, leaves us to be Professor of Medicine and Head of the Department in the new Faculty of Medicine in the University of British Columbia. Dr. Kerr will be sorely missed in our school. He has been chairman of the Committee on Postgraduate Studies, a post in which he has served with vigour and diligence. Our best wishes go with him in his challenging new venture.

We regret to record the death of Dr. Fletcher McPhedran. He retired from the active teaching staff two years ago, but generations of students will be saddened, as we were, to hear of his passing. He will long be remembered as a cheerful and stimulating teacher.

Another great teacher and firm friend of this school, Dr. William Goldie, died during the year. He retired from active teaching in June, 1928, but maintained an active interest in all the activities of the school until the time of his death. By the terms of his will the larger part of his considerable estate will be left to the Department of Medicine to be used for clinical research.

The Faculty Council has for the past few years taken an increasing interest in the University Health Service, which has since the war been under the vigorous and enlightened direction of Dr. C. D. Gossage, O.B.E. Dr. Gossage leaves the Health Service for full-time work with another organization. His place will be taken by Dr. G. Woodhouse, M.C.

Research in all departments has been active and covers an extraordinarily wide field. The expanded facilities in the laboratories of Pathological Chemistry, devoted to steroid chemistry, have been taxed to their capacity since they were opened. The increasing availability of cortisone and ACTH under a federal scheme of supply has necessitated increased staff and laboratory space, in order to assay properly the involved and complex effects of these new compounds in human physiology and pathology. Likewise, the isotope laboratory has been in use for the past eight months and is proving of value in the dispensing and study of radioactive isotopes for human use.

We have been honoured during the session by many distinguished visitors. Sir James Learmonth, Professor of Surgery at Edinburgh University, delivered the Balfour Lecture in October. He spent three or four days with the Department of Surgery making rounds at all the teaching hospitals. Lord Webb-Johnson, the immediate Past President of the Royal College of Surgeons of England, spent a week here in the autumn and the degree of LL.D. (*honoris causa*) was conferred on him by the University. Dr. F. G. Young of Cambridge gave the Banting Memorial Lecture, and Dr. Sidney Portis of Chicago the Phi Delta Epsilon Lecture. Sir Lionel Whitby of Cambridge, Sir James Parkinson of London, Professor Chassar

Moir of Oxford, Professor F. H. Bentley of Durham, Professor Johan Holst of Oslo, Norway, and many others from medical centres throughout the world have visited us for varying periods, and on many occasions they have addressed the final-year students and the graduate students in their particular specialty.

Report of the Dean of the Faculty of Applied Science and Engineering

The closing of Ajax, at the end of the 1948-9 session, brought the first- and second-year students back to the Toronto campus and created a new record in number of students in attendance, 2,904 in all, of whom 1,072 were in the final year.

The occupation of the Wallberg Building and the new Mechanical Building provided the much-needed additional space for the accommodation of these students. In spite of this extra space there were many time-table problems. Convocation Hall had to be used extensively for classes although it is considered very undesirable to deliver lectures to such large numbers. It was possible to keep most of the teaching between the hours of 9 A.M. and 6 P.M. but a few lectures were given at 8 A.M. and some evening laboratory periods extended to 9 P.M. Although the space was sufficient, a great deal of crowding and congestion was necessary. Some of the space in the Wallberg Building, equipped as chemical laboratories, had to be used as drafting rooms, an undesirable arrangement.

Examination results followed the normal pattern. The first-year failure rate was 26 per cent compared with a long-term average of 25. The fourth-year failure rate was 0.7 per cent against an average of about 2. More than 500 students submitted petitions to Council for special consideration regarding examinations. It is a matter of concern that some of these may not be submitted in good faith but may represent simply an effort on the part of the student to tip a dubious balance slightly in his favour.

The success of the veterans in their examinations while notable in view of the personal circumstances under which many of them have had to pursue their studies was not as great as that of the non-veteran students. In the first and second years the failure rate for veterans was approximately double that of the civilians. Veteran enrolment accounted for 56 per cent of the total.

Many of the students from foreign countries failed in their examinations. Their difficulty is attributed principally to insufficient familiarity with the English language. One wonders whether the University might not well consider a one-year orientation course through which all students speaking foreign languages would pass. If the University is to accept any obligation with respect to its foreign students it must take stock of its methods and its results.

The teaching load at all levels has remained heavy. The number of students per professor dropped only to 52 as compared with a "normal" of about 23. There was much difficulty in recruiting demonstrators and instructors and it was necessary to make many part-time appointments. The burden of undergraduate teaching has made it difficult to devote sufficient attention to the growing number of graduate students.

The Faculty suffered the loss by death of Professors A. R. Zimmer, G. R. Edwards and Professor Emeritus H. W. Price. It also loses through retirement the services of Professors J. R. Cockburn and J. E. Toomer.

The rules for the passing of final examinations have been amended: the new rule requires that in order to pass the student shall have an average of 60 per cent. In addition the average will be weighted according to the time devoted to each subject. This change is not intended to represent a change in standard of performance required but simply a superior method of dividing the candidates at the pass-fail line. Under the old rule a student would pass with two subjects failed and an

average of 54.50 per cent while another student might not pass with an average of 70 per cent but three subjects failed. It is considered that the new rule will considerably simplify the work of Council's Examination Committee.

This is the last session with the old admission standard. Under the new standard students will be required to have at least third-class honours in each Grade XIII subject. Of some 107 students admitted this year who could not meet the new requirement, 31 failed the work of the first year. It is expected that the new admission standard will decrease the failure rate particularly in the first two years.

The third Wallberg Lecture was delivered by the eminent British engineer, Sir Richard Southwell, his subject being, "Fifty Years of Engineering Science."

K. F. Tupper

Report of the Director of the Institute of Aerophysics

In January, 1949, two grants were made by the Defence Research Board to the University of Toronto for the establishment and operation of an organization to be known as the Institute of Aerophysics. The first grant was to be expended for research equipment and for alterations to an existing building at Downsview Airport. The second grant was made to assist in defraying the cost of operating the new laboratory over a period of three years.

The two primary purposes of the Institute of Aerophysics are: (*a*) to train scientific personnel for research and developmental work in aerophysics (i.e. in basic fluid dynamics, applied aerodynamics, aeroballistics, and related aspects of jet and rocket propulsion); (*b*) to engage in basic research in aerophysics and to develop practical applications.

An Advisory Committee for Aerophysics Research has been set up to advise the Director of the Institute of Aerophysics. The first meeting of this committee was held on February 13, 1950.

A building at Downsview Airport was made available to the Institute of Aerophysics by the Defence Research Board. Alterations to this building were completed by December 15, 1949. The building has three sections: (*a*) offices, lecture room, design office, students' room and instruments laboratory; (*b*) a fluid dynamics laboratory and workshop; (*c*) a large supersonic wind tunnel laboratory. All sections of the Institute have been placed in operation except the large supersonic wind tunnel. The design of the latter has been completed and all major components have been delivered.

The large supersonic wind tunnel will be of intermittent type capable of tests over a large range of Mach number and Reynolds number. The four main components of this tunnel are: a steel sphere, 40 feet in diameter mounted outside of the building; a 200 h.p. pumping plant powered by a diesel engine, designed to obtain a very low vacuum in the sphere; an air drying plant and a large room for the storage of the dry air; a steel duct joining the dry air storage room to the sphere containing the test section and variable diffuser.

The wind tunnel has been designed to operate at speeds up to seven times the velocity of sound in a test section with a cross section 40 cm. by 40 cm. This supersonic wind tunnel will be the largest in Canada and is equivalent in size to the largest in the United States capable of these speeds. The vacuum pumping system and the air drying plant are sufficient for the requirements of basic research. It will require about 50 minutes to completely evacuate the sphere and to store up sufficient dry air for a single test run with a duration of about 20 seconds. Experience with the small supersonic tunnel shows that for optical studies, a test run of 1 or 2 seconds' duration is sufficient and, for this class of work, no appreciable time is lost waiting for a vacuum low enough for a subsequent run. While developmental work can be done in the large supersonic wind tunnel, the design is not particularly suitable for

frequent tests of long duration requiring the use of force balances. The sphere, pumping plant, and dry air storage room, while forming the basic plant for operating the large wind tunnel, can be used for an extensive system of smaller wind tunnels for special projects. These tunnels can be operated continuously and the cost of installing them will be small. Thus special tunnels can be readily set up for studies of hypersonic flow, heat transfer experiments, or basic investigations of aerofoil cascades for compressors and turbines. Valuable assistance in the design of the large supersonic wind tunnel has been received from Mr. G. V. Bull and Mr. I. I. Glass.

G. N. Patterson

Report of the Secretary of the Faculty of Household Science

Two years ago options were introduced into the fourth year of the Household Economics course. This change is proving to be satisfactory, and is meeting with a good response from the students. It does not offer major specialization but succeeds in orienting the student towards some of the fields open to Home Economics students which may be entered after graduation.

The three- and four-year courses offered in Household Science by the Faculty are similar in content to that offered through Household Economics in the Faculty of Arts. To some extent, however, these courses serve a different purpose. The three-year course enables students who are not concerned with a professional goal to graduate in a shorter time. The admission requirements and passing standards are not as rigid as in the honour course. Thus students who are not of honour calibre may obtain a pass degree in Household Science. Finally, because of the more flexible policy in this Faculty, the three- and four-year courses make it possible for students who transfer from other universities in Canada to continue their course without losing as much time as they might if admitted to the Faculty of Arts. The small number of students registered in the Faculty belong to one or the other of the above groups.

In the Department of Food Chemistry, interest continues to increase in the revised honour course in Food Chemistry offered through the Faculty of Arts. More students than in the past are entering this field at both the graduate and the undergraduate level. The students taking the course show considerable enthusiasm. Some of the food industries are taking an interest in the course. Many of the students work in food plants during the summer, and graduates have had no difficulty in obtaining good positions in their specialized fields. Two fourth-year students collaborated in an analytical chemistry experiment with the Department of Nutrition of the Ontario Agricultural College. The Department regrets the loss of Mr. J. Francis, a valued member of the staff, who has left to join the Department of Horticulture at Guelph. His loss accentuates the problem posed by the lack of enough senior staff members to give adequate attention to the fourth-year students specializing in Food Chemistry, and to the increased number of graduate students. Space and equipment are also inadequate. This is much to be regretted since the field is developing so rapidly.

M. Doreen Smith

Report of the Dean of the Ontario College of Education

The enrolment in the Ontario College of Education was slightly higher than last year, owing in part to the fact that about 50 per cent of the students were ex-service personnel—the highest percentage since the war. There will be a surplus of high school teachers in some departments in September, but for some years to come it will be difficult to supply the requirements of the profession in home economics, women's physical education, science, commercial subjects, some voca-

tional subjects, and industrial arts and crafts. It is a matter of some concern that there were only two honour graduates in science enrolled this year. Because of high industrial wages and low initial teachers' salaries it has become increasingly difficult to persuade experienced tradesmen and tradeswomen to enrol for Vocational Training. Courses in music have assumed greater importance because of the enrolment of graduates of the course in School Music in the University. Training in instrumental music has been offered for the first time this session.

The Library School records the largest registration in its history. The sixty-two graduates representing all the provinces of Canada have had little difficulty in finding places. Students have been offered a wide range of positions in Canada and the United States from which to choose. During the year a course leading to the degree of Master of Library Science was established and will be offered in the session 1950-1.

There has been a steady increase in the number of graduate students and those working for the degree of Bachelor of Pedagogy. They come from the ten provinces and from the United States, and on completion of their courses many of them find responsible positions in educational systems across the continent.

A new wing has been constructed during the year and will be ready for occupation in September. Increased facilities will be provided for graduate work, for educational research, and for the courses in music. The structure will also include shops for vocational training so that it will no longer be necessary to obtain space at the Central Technical School. A new gymnasium is provided for men's physical education, which for many years was conducted in Hart House.

The Vocational Guidance Centre has shown considerable growth in activity. Guidance materials have been carefully selected and have been made available to the schools of the nation, and the turnover has increased to about $75,000 for the year.

Several staff changes have occurred. Mr. N. L. Murch who has served the University Schools well for the past thirty-five years retires at the close of the session. He has found a lasting place in the affection of his colleagues and of a long line of U.T.S. boys. Mr. D. A. Dadson resigned in January to accept a post as high school inspector with the Department of Education. Mr. John R. Willis has resigned from the staff of the University Schools to become Principal of Brampton High School. Miss Eileen Weber leaves at the close of the session to accept the post of Librarian of the Niagara Falls Public Library. Mr. W. A. Stickland was granted leave of absence to accept an Ontario Government scholarship for the study of French at the Sorbonne.

Mr. A. P. Haig of Harbord Collegiate Institute was appointed to fill the vacancy caused by the resignation of Dr. Leslie Bell a year ago. Mr. A. P. Seggie of W. D. Lowe Vocational School, Windsor, was appointed Lecturer in Commercial Subjects on the retirement of Dr. W. G. Bennett at the close of the previous session. Mr. C. C. Pitt, School Psychologist of East York, was appointed to the staff to assist with the mental health programme. Miss Margaret Cockshutt was appointed Lecturer and Reviser in Library Science to succeed Miss Dorothy Watson.

The continued absence of Dr. R. W. B. Jackson and Mr. E. B. Rideout who are on loan to the Ontario Government's Royal Commission on Education has impeded the work of the Department of Educational Research.

I should like to express my gratitude for leave of absence which was granted to enable me to accept an invitation by UNESCO to become a member of the UNESCO Consultative Educational Mission to the Philippines. The work of the mission, extending over a period of more than six months, was completed early in August with the submission of a report to the President of The Philippines. During this time Dr. J. A. Long very capably carried out his normal duties as Director of Educational Research as well as those of Acting Dean of the College.

A. C. LEWIS

Report of the Dean of the Faculty of Forestry

The total enrolment of undergraduates in the Faculty of Forestry for the present session (251) showed some reduction from the high record of 1948-9 (303). This downward trend in student enrolment will continue during the next few years as indicated by the number of students registered in each of the four years during the session 1949-50, the figures in brackets being the percentage of ex-service men represented in each class:

First year	43 (10%)
Second year	55 (24%)
Third year	64 (78%)
Fourth year	89 (85%)

However, from the number of inquiries and applications that have been received from high school students it would appear that for some time to come the total enrolment will continue to be well above the maximum for the years previous to 1945.

During the year applications have been received from a number of students and graduate foresters in Western European countries for admission to the Faculty to take either undergraduate or postgraduate courses; an application for the undergraduate course usually is accompanied by the request that the applicant be admitted to advanced standing. In view of the differences in methods and conditions of forestry practice in Europe and North America, and the varying standards of university education, it is the opinion of the Faculty that in nearly all cases such applicants, if accepted, should be registered in the first year of the undergraduate course and granted advanced standing only after their qualifications have been fully considered and approved by the departments of the University concerned, and after they have been given a chance to prove themselves linguistically as well as academically.

The employment in forestry of both undergraduates and graduates has continued to be satisfactory and at the present time all undergraduate students of the Faculty are employed for the summer on forestry work and more than 80 per cent of this year's graduates have obtained permanent posts in their profession, either with industry or the government services. Nearly all of the remainder have temporary positions which in at least some cases may lead to permanent work later on. This situation is rather remarkable and eminently satisfactory in view of the fact that nearly 500 foresters have graduated in eastern Canada during the past two years—more than one-third of all who had graduated in Forestry in the whole country previous to 1949.

During the session instruction was given to three students enrolled in the School of Graduate Studies, proceeding to the M.Sc.F. degree. These included a graduate from a Chinese university, who has satisfactorily completed his graduate work, one from the University of Utah, and one from the University of Toronto. Inquiries have been received from a number of students in this country, the United States, and Europe as to the possibilities of taking advanced work in a number of different branches of forestry at the University of Toronto. It is hoped that in the near future the facilities and staff will be available to accommodate more of these students who have the required standard for admission.

During the session work was done on the following research projects, either by members of the Faculty staff or by other research groups working at the University Forest:

1. The study of white pine regeneration under the direction of Professor R. C. Hosie, commenced in 1947 on the University Forest, was transferred for the summer of 1949 to a white pine cut-over area on the Little Nipissing River in Algonquin Park. This was done in order to study the factors affecting good regeneration of the species in that area. An interim report on this phase of the work

has been prepared. Field work on this project and the compilation and evaluation of the data that have been collected will be completed during the summer of 1950 preparatory to the writing of the final report.

2. A study was begun during the summer of 1949 on the growth, quality, and silvicultural conditions of the timber stands on a representative block of the University Forest. Its purpose is to obtain detailed information for use in evaluating the more general data from earlier surveys of the forest and in the development of management plans. A preliminary report has been made and a final report will be prepared on completion of the field work during the summer of 1950.

3. A study of the decays found in hard maple and of the relationship between decay and various mensurational factors important in the management of this species, under the direction of Dr. J. E. Bier of the Division of Plant Pathology, Department of Agriculture (Ottawa), was completed on the University Forest in 1949 and the final report on this work will be available in the autumn of 1950. Further studies of disease conditions affecting commercially valuable tree species are being undertaken by the Dominion Division of Plant Pathology on the University Forest, and it is understood that the pathologists are hoping to establish shortly a permanent laboratory there to facilitate this work.

The Faculty of Forestry is working in close collaboration with the Soils and Silvicultural groups of the Research Division, Ontario Department of Lands and Forests, in the development of a long-term programme to investigate problems affecting forest management on the University Forest and other similar areas in the forest region it represents.

A development in air surveys brought about largely by the Dominion Forestry Branch, known as the tri-camera method of aerial photography, has important applications in forest inventory work in this country. Under a co-operative scheme the Dominion service has recently had photographs of the University Forest taken by this method and prints will be made available for use in the Faculty. A field party from the Dominion Forestry Branch is spending some time at the University Forest during the summer of 1950 carrying out ground measurements to correlate with data obtained from the photographs. This work will be of value not only for student instruction but also as a basis for further development of the method, particularly in the use of large-scale sampling photographs.

During the year a prize was established by Miss Dorothea M. Edmonds and Mr. C. W. Edmonds in memory of their brother Lieutenant Harold S. Edmonds, M.C., who enlisted in the British Army in 1916 while a second-year student in the Faculty of Forestry. Lieutenant Edmonds died of wounds received at Vimy Ridge in April, 1917. The prize is to be awarded to the student who ranks highest with honours at the annual examinations of the second year.

Mr. A. D. Hall ('48) has been appointed to the staff of the Faculty as Lecturer. Mr. Hall is representing the Faculty at the Ontario Forest Ranger School and is in charge of operations on the University Forest.

J. W. Sisam

Report of the Dean of the Faculty of Music

Registrations in the Mus. Bac. General Music course have suffered a sharp decrease this year, the total number in all three years being 26 as compared with 46 in 1948-9. Four candidates received their degrees in this course as compared with 9 a year ago.

In the School Music course the number registered was 74 as compared with 72 in 1948-9; 12 students received their degrees. The degree of Doctor of Music was conferred on one candidate, and the Ph.D. degree was conferred—probably for the first time—on a candidate specializing in Musicology.

Two of the leading members of our Faculty retire this year. Professor Healey Willan, who is internationally known as an outstanding composer, was a Lecturer in the Faculty of Music from 1918 to 1927 and from 1933 until he was appointed Professor in 1938. He has guided and inspired many students in that time and his retirement will be the occasion of widespread regret. Dr. Willan will however continue in his office as University Organist, a post which he has held since 1933. Professor Leo Smith, also a composer of note as well as a distinguished cellist and musical historian, held a position as Lecturer from 1927 until his appointment as Professor in 1938. He too will be greatly missed; large numbers of students have reason to look back on the years spent under his tuition with deep gratitude for his expert guidance and with affection for his kindly personality. To both these gentlemen the Faculty extends its warm thanks and good wishes.

Eight organ recitals were given in Convocation Hall during the past season—four by Professor Willan, and one each by the following: Muriel Gidley, David Ouchterlony, Charles Peaker, and Frederick Silvester.

Among other musical activities not directly connected with the Faculty were the usual series of Sunday evening concerts in Hart House and in several of the affiliated colleges. The Hart House Friday afternoon concerts were replaced by a series held on Sunday afternoons up to Christmas and thereafter on Wednesday afternoons. The Hart House Glee Club (Dr. Charles Peaker, Conductor) appeared on a number of occasions in Hart House and elsewhere and a special Christmas programme was broadcast in December. It is noteworthy that the Glee Club has, since its formation in 1933, grown from a membership of 15 to one of over 100. Dr. Peaker, who has had charge of the Glee Club since 1934 and who is chiefly responsible for its growth in both numbers and quality, has found it necessary to resign his position as Conductor this year. The thanks and good wishes of all concerned go with him. Professor Johnston has also found it necessary, because of pressure of other duties, to resign his position as Chairman of the organization.

The University Orchestra and All-Varsity Mixed Chorus, under the conductorship of Mr. Lee Hepner and under the sponsorship of the Students' Administrative Council, gave three successful concerts in Convocation Hall. Carillon recitals given by Mr. J. L. Richardson from the Great Tower have as usual included a Sunday evening series during the month of June and special recitals on holidays and at Convocations.

The Undergraduates Association of the Faculty again raised a large sum for the University Community Chest Fund through a Red Feather concert held in Convocation Hall on October 27. This Association has also arranged several enjoyable social functions and, together with the corresponding organization of the Royal Conservatory, was largely instrumental in promoting the fourth annual symposium of the International Federation of Music Students from March 8 to 11. This was an important function and the first of its kind to be held in Canada: many original compositions by students from most of the leading schools of music in the United States as well as in Canada were presented—the performers also being students—and discussions were highly stimulating.

Once again we have reason to thank Professor Johnston for his successful efforts in securing donations from a number of firms and individuals for the Student Assistance Fund. Five bursaries of $100 each have been presented to deserving students and the Faculty is most grateful to the donors as well as to Professor Johnston.

The Royal Conservatory of Music of Toronto has had another banner year in which registrations for both tuition and examinations have continued to increase. Outstanding among the Conservatory's activities have been the International Federation Symposium, an admirable series of operatic productions, both on the stage and over the C.B.C. networks, and two concerts in Massey Hall at which Dr. Mazzoleni and the Conservatory Orchestra presented most enterprising programmes

with performances of the finest professional standard and four gifted students acquitted themselves with distinction. The highest interest was aroused by the first performance of Dr. Willan's second symphony, which won wide acclaim.

The twenty-seventh annual presentation of Bach's *St. Matthew Passion* was given in Convocation Hall on April 5, the entire performance being again broadcast by the C.B.C. This performance was repeated in Massey Hall on April 20 as one of the chief events in a three-day Bach Festival.

Once again one must record an appreciation of the work of Miss Jean Woods as Secretary to the Faculty; her efficiency, patience, and helpfulness have impressed themselves on everyone concerned.

ERNEST MACMILLAN

Report of the Dean of the School of Graduate Studies

In the session 1949-50 registration of graduate students reached a new high of 1,587 (1,331 men and 256 women) as compared with 1,363 (1,095 men and 268 women) in 1948-9. Over one-third (586) came from Toronto and not quite two-thirds (1,158) from the Province of Ontario, including representatives from practically every county. Of the remainder, each of the ten provinces sent graduates in numbers ranging from 62 from British Columbia to 2 from Newfoundland. The United States sent 73 and other countries 67, including China 33, India 10, British West Indies 5, with smaller numbers from fourteen other countries.

As predicted in the last report the number of graduate students receiving assistance from the Department of Veterans Affairs increased to 414 as compared with 324 in 1948-9. The United States veterans' administration assisted 32. It is important to urge again that the University continues to face an extremely difficult task in the handling of these students, many of whom took their undergraduate work in crowded classes and under a staff which had been weakened by the war and post-war demands. The problem will become most acute in the next two or three years as these students reach the last years of graduate work. In 1949-50, 514 degrees were conferred; 313 students received the Master's degree and 86 the degree of Doctor of Philosophy. The preparation of students for the degree of Doctor of Philosophy and for other higher degrees taxes the energies and resources of the University, of the staff, and of the students to the utmost limit. It may be doubted whether the implications of these demands have been adequately recognized. The Department of Veterans Affairs has been co-operative in meeting the problems of individual students but flat assistance grants for students ranging from the first year of undergraduate to the last year of postgraduate work can scarcely be described as satisfactory from the standpoint of any group concerned. No university in Canada has ever before faced a task of the magnitude imposed upon the University of Toronto at the present time.

It will be noted in the statistics that the School of Graduate Studies attracts students from all across Canada and from many other countries. Canadian universities have undertaken on a larger scale the task of training postgraduate students with the result that the University of Toronto has been compelled to assume increased responsibility for the latest stages of graduate work.

It should be pointed out that the task would not have been met as effectively as it has been but for the reorganization of the School. With the session 1949-50 reorganization has been effective for three years. I cannot over-emphasize the importance of the work done by my colleagues, Professor Jeanneret, Chairman of the Humanities and Social Sciences Division and Professor Gordon, Chairman of the Science Division. With the committees of their respective divisions they have made herculean efforts to meet the tasks which have been imposed upon the School and for them it is necessary to bespeak every possible assistance.

The University has attempted to meet the problems of graduate students, during this period of acute difficulty accentuated by higher living costs, by fellowships, bursaries, a reasonable scale of fees, and by assistantships and junior teaching positions. It is scarcely necessary to say that at best these are inadequate and that the recent reduction of the general budget has had serious effects on the position of more advanced students with standing suitable for junior appointments.

The graduate schools across Canada and in particular that of the University of Toronto are constantly faced with competition from institutions in Great Britain, France, and the United States. For this reason the problem of maintaining and improving the cultural level of Canadian life rests immediately on Canadian universities notably on those offering advanced work. The standards of teaching in institutions across Canada will depend in the future on the character of graduate work. Attempts have been made to meet the problem in this University by inviting distinguished scholars from other institutions to lecture on their special fields of interest as indicated in the list given below. In the field of administration provision has been made for more effective direction by enlargement of the Institute of Industrial Relations to include Business Administration with special reference to courses leading to the Master of Commerce degree. A graduate department of the School of Architecture was established in the Science Division, and in the Library School in the Humanities and Social Sciences Division.

It is perhaps sufficient to say that the immediate major problem of the School of Graduate Studies is that of training leading to the more advanced degrees and in particular the doctorate of philosophy. Departments vary greatly in their capacities to direct research, and the task of achieving uniformly high standards for graduate work in all departments is indeed a difficult one. But the problem can be solved, first, by careful scrutiny on the part of the University in order to secure proven ability in scholarship and research in any new appointment and, second, by equally careful scrutiny on the part of departments of the ability of would-be graduate students. There can be no first-class graduate school unless it possess a distinguished faculty and a student body of the highest quality; second best is not enough.

The following eminent scholars and scientists were guest professors in the School for the periods indicated:

Department of Chemistry
Professor F. S. Dainton, Cambridge University; October, 1949.

Department of Germanic Languages and Literatures
Professor L. A. Willoughby, University of London; Michaelmas term.

Department of History
Professor Keith Feiling, All Souls College, Oxford; Michaelmas term.

Department of Political Economy
Professor W. G. S. Adams, formerly Warden, All Souls College, Oxford; Michaelmas term.

Department of Romance Languages and Literatures
Professor René Bray, University of Lausanne; Easter term.

Special Committee representing Mathematical and Biological Sciences
Professor R. A. Fisher, Cambridge University; Easter term.

LECTURES GIVEN UNDER THE SPONSORSHIP OF THE SCHOOL OF GRADUATE STUDIES, 1949-50

Department of Anthropology
Professor John Embree, Yale University. "Culture Change in South-East Asia."

Department of Astronomy
Professor Martin Schwarzschild, Princeton University. "Stellar Pulsations"; "Magnetic Oscillation in a Star"; "Storms in the Stars."

Department of Biochemistry

Dr. Robert Chambers, Marine Biological Laboratory, Woods Hole, Mass., U.S.A. "Permeability of Cells and Cellular Membranes"; "Micromanipulative Studies on Cells."

Department of Botany

Miss Dorothy Nickerson, United States Department of Agriculture. "Quantitative Methods of Handling Visual Colour Records"; "Methods of Making Visual Colour Records for Biological Purposes."

Mr. R. W. Marsh, University of Bristol.

Department of Chemistry

Professor Eric K. Rideal, Royal Institution, London, England. "Reactions in Monolayers."

Dr. E. V. White, University of British Columbia. "Some Aspects of Carbohydrate Chemistry."

Departments of Chemistry and Chemical Engineering (Scientific conference at opening of Wallberg Memorial Building)

Dr. Louis G. Longsworth, Rockefeller Institute of Medical Research. "Moving Boundary Studies on Salts and Proteins."

Dr. Henry Gilman, Iowa State College. "Some Aspects of Organo-Metallic Compounds."

Dean T. K. Sherwood, Massachusetts Institute of Technology. "The Relationships between Heat Transfer, Mass Transfer, and Fluid Friction in Turbulent Flow."

Dr. A. P. Colburn, University of Delaware. "Azeotropic and Extractive Distillation."

Dr. G. G. Brown, University of Michigan. "Equilibrium Relationships of Complex Hydrocarbon Systems."

Department of Classics

Professor Lily Ross Taylor, Bryn Mawr College. "The First Consulship of Julius Caesar."

Department of English

Professor R. C. Bald, Cornell University. "Donne—New Light on the Biography." "Donne—The *Anniversaries.*"

Department of Geological Sciences

Professor J. T. Sanford, Wayne University, Detroit. "Stratigraphy in Petroleum Geology."

Dr. F. J. Alcock, National Museum, Ottawa. "The Geology of Canada."

Dr. A. E. Cameron, Nova Scotia Technical College.

Department of History

Colonel C. P. Stacey, Department of National Defence, Ottawa. "Military Problems in Canadian-American Relations, 1815-1871."

Departments of Hygiene and Preventive Medicine and Botany

Professor F. C. Bawden, Rothamsted Experimental Station. "Plant Viruses"; "Immunity and Serology of Viruses."

Department of Law

Dr. Julius Stone, University of Sydney, Australia. "Myths of Planning and Laissez-Faire."

Department of Mathematics

Professor R. Brauer, University of Michigan. "Topics in the Theory of the Zeta-Functions of Algebraic Number Fields" (three lectures).

Professor C. C. Lin, Massachusetts Institute of Technology. "Theory of Isotropic Turbulence" (two lectures); "Stability of Jets."

Professor A. E. Schild, Carnegie Institute of Technology. "Quantization of the Gravitational Field."

Professor L. C. Young, University of Wisconsin. "Generalized Curves and Surfaces" (three lectures).

Professor H. Zassenhaus, McGill University. "A New Method in the Geometry of Numbers"; "The Theory of Space Groups."

Department of Philosophy

Professor Sidney Hook, New York University. "The Nature and Significance of Naturalism."

Department of Physiology

Professor Laurence Irving, Swarthmore College. "Insulation of Arctic and Tropical Animals"; "Relation between Insulation, Metabolism, and Temperature Regulations."

Department of Physics

Dr. F. G. Brickwedde, National Bureau of Standards, Washington. "Applications of Low Temperature Specific Heats in Investigation of Molecular Structure"; "Electronic Specific Heats."

Dr. L. G. Elliott, Chalk River, Ontario. "Theory and Experimental Techniques in Nuclear Physics."
Professor Henry Margenau, Yale University. "Intermolecular Forces" (2 lectures).
Professor F. E. Simon, University of Chicago. "Unattainability of Absolute Zero."
Professor Louis B. Slichter, University of California. "The Investigation of the Crustal Layers of the Earth by Electrical Induction"; "Electromagnetic Prospecting—Theory and Practice."
Professor C. H. Townes, Columbia University. "Microwave Study of Pure Rotational Spectra of Molecules"; "The Nucleus as a Probe of Electron Distribution."
Professor A. Michels, Office of Naval Research, Washington. "High Pressure Research Techniques." (Van der Waals Laboratorium, Amsterdam, Holland.)
Dr. Francis Birch, Harvard University. "Heat Flow in the Front Range, Colorado."

Department of Political Economy

Mrs. Margaret Cole, Oxford University.
Professor T. A. Ashton, London School of Economics.

Department of Psychology

Dr. D. O. Hebb, McGill University. "The Nature of Human Motivation."
Dr. G. R. Wendt, University of Rochester. "The Experimental Study of Seasickness and Airsickness."

Department of Semitics

Professor G. G. Cameron, University of Michigan. "Bisitun: Key to the Decipherment of Ancient Inscriptions."

Department of Zoology

Dr. Harold F. Blum, Princeton University. "Some Problems in Photobiology" (four lectures).
Dr. J. H. Bodine, State University of Iowa. "Respiratory Metabolism in Developing Insects" (three lectures).
Dr. G. E. Hutchinson, Yale University. "The Migration of Nutrient Elements in Lakes"; "Thoughts on Phosphatic Islands."

Department of Social Work

Mr. Robert T. Lonsdale, Commissioner of Social Welfare for New York State. "Public Welfare Developments in the United States."

Fellowships and Scholarships Awarded June, 1950

R. V. Lesueur Fellowship

G. D. Jackson, B.A. Manitoba, Diplôme Paris, Department of Romance Languages

Reuben Wells Leonard Fellowships

B. L. M. Embree, B.A. Manitoba, Department of Semitics
J. Goerzen, B.A. Alberta, Department of Germanic Languages and Literatures
A. P. Monahan, B.A. Toronto, Department of Philosophy
D. W. Quick, B.A. Toronto, Department of Philosophy
J. G. Rowe, S. B. Harvard, Department of History
C. E. Sanborn, B.A. Toronto, Department of English
Miss J. G. Taylor, B.A. Alberta, Department of Romance Languages
W. K. Thomas, B.A. Toronto, Department of English
T. Thorgrimsson, B.A. Manitoba, Department of History
F. G. Ward, B.A. Queen's, Department of History

Sir Joseph Flavelle Fellowships

J. L. A. Colhoun, B.A., LL.B. Dublin, Department of Law
Miss M. Hertz, B.A. Toronto, Department of Romance Languages

The George Sidney Brett Memorial Fellowship

R. A. Hurd, B.A. Toronto, Department of Applied Mathematics

Alexander Mackenzie Research Fellowship

M. P. O'Connell, B.A. Queen's, M.A. Toronto, Department of Political Economy

Sigmund Samuel Chinese Scholarship

A. F. McKenzie, B.A. Alberta, Department of East Asiatic Studies

The W. L. Mackenzie King Fellowship in International Relations

Miss J. O. Hutchinson, B.A. Toronto, Department of Political Economy

The Dr. Mercer Scholarship in Near Oriental Research
F. J. Giles, B.A. Toronto

The Dow Chemical Company Research Fellowship
R. N. Wensley, B.S.A. Saskatchewan, Department of Botany

Elizabeth Ann Wintercorbyn Awards in Botany
V. C. J. Quesnel, B.A. Toronto
B. H. MacNeill, B.Sc. Acadia
R. H. Stover, B.S.A. Toronto

Ramsay Wright Scholarship for the Encouragement of Research in Zoology
L. M. Dickie, B.Sc. Acadia, M.Sc. Yale

C. I. L. Fellowship in Chemistry
D. A. Smith, B.A. British Columbia

James William Woods Fellowships
W. M. Balke, B.Sc. Alberta, Department of Political Economy
P. J. Phoenix, B.A. Toronto, Department of Political Economy

The Kresge Fellowship
W. S. A. Martin, B.A., LL.B. Manitoba

Sidney Hillman Memorial Award
T. J. Ramakrishnan, M.A. Madras, Department of Political Economy

The Algoma Ore Properties, Limited, Scholarships and Fellowships
C. R. Cupp, B.A.Sc. Toronto, Department of Metallurgical Engineering
W. Curlook, B.A.Sc., Toronto, Department of Metallurgical Engineering

Wallberg Research Fellowships
A. I. Johnson, B.A.Sc. Toronto, M.Ch.E. Poly. Inst. Brooklyn, Department of Chemical Engineering
O. J. C. Runnalls, M.A.Sc. Toronto, Department of Metallurgical Engineering

The Garnet W. McKee and the Garnet W. McKee—Lachlan Gilchrist Scholarships
G. W. Johnston, B.A.Sc., Department of Engineering Physics
R. F. Johnston, B.A.Sc. Toronto, Department of Engineering Physics
J. R. Bird, B.A.Sc. Toronto, Department of Physics
G. E. St. John, B.A.Sc. Toronto, Department of Physics
F. C. Stephenson, B.A.Sc. Toronto, Department of Physics
S. H. Ward, B.A.Sc. Toronto, Department of Physics

Report of the Dean of the Faculty of Dentistry

During the session three members of the staff, each with twenty years or more of loyal and efficient service, passed away. The sudden death of Assistant Dean Thomas Cowling in April removed from our midst a man who had served dental education with distinction for thirty-seven years. Miss F. Cook, while retired at the time of her death in December, had during her period of service been secretary to three deans of this Faculty. Mr. A. F. Fenton passed away suddenly in May. He was an outstanding technician associated with Professor Harold K. Box in the Research Department of Periodontology.

Seventy-five years ago the Royal College of Dental Surgeons of the Province of Ontario established the first dental school in Canada. During the first fifty years this school was affiliated with the University of Toronto, and in 1925 became the Faculty of Dentistry of this University. In co-operation with the Canadian Dental Association and the Ontario Dental Association the seventy-fifth anniversary of the founding of dental education in Canada was celebrated in May. A clinical "at home" was held on the afternoon of May 17 in the Dental Building, at which time dental graduates of the University and their colleagues in the profession were in attendance at a comprehensive scientific programme provided by the staff.

The total registration of students in the Faculty of Dentistry for the 1949-50 session was 576 (19 less than the previous session). This figure includes 538 under-

graduates (6 women), 25 dental nurses, and 13 postgraduate students. The postgraduate students comprised 6 proceeding to the diploma in Dental Public Health; 3 B.Sc.(Dent.) candidates, 3 occasional students, and 1 proceeding to the diploma in Periodontology. While no candidates registered in September, 1949 for the diploma in Orthodontics, the Faculty recently examined 54 applications for this course for the 1950-1 session. Only a limited group can be accommodated.

With a class of 170 graduating this spring, and a limit of 65 to be admitted to the predental year in September, 1950, and after making an allowance for those who will be admitted with advanced standing to the first dental year, it is anticipated that the total registration will drop to approximately 500 for the session 1950-1, as compared with 576 for 1949-50. Nevertheless this figure contrasts sharply with the average registration of 280 for the twenty-five year period 1925-49.

In my last report I referred to the problem created by displaced European dentists who have been admitted to Canada, and who are seeking training in order to qualify for the practice of their profession in this country. The Council of the Faculty now recommends that a limited number of dental graduates from recognized European universities be admitted to a two-year programme commencing with the session 1950-1.

A large number of applications have been received from graduates of dental schools in other parts of the British Commonwealth. Because of overcrowded classes, particularly in the clinical years, none of these students were accepted during the present session, nor will any be accepted during the 1950-1 session. A review of our former policy of admitting these postgraduate students to the undergraduate course is contemplated at this time.

Many requests are being directed to this Faculty for the establishment of a two-year course for dental hygienists. An extensive study has been made by the Faculty of the content of such a course, and a sizeable list of prospective applicants is on file.

A study of the curriculum of the Faculty has been in progress for two years. The objectives of this study are as follows: (1) to co-ordinate the teaching in the fundamental physical and biological sciences with dental practice; (2) to place increasing emphasis on preventive aspects of dentistry, and at the same time to train students in the skills of restorative dentistry; (3) to arrange a time-table in each of the years which will provide the students with sufficient spare time for independent reading, thinking, and extra-curricular activities. Specific recommendations respecting changes in the curriculum of the first dental year will go into effect in September, 1950. Changes in the subsequent years of the course will be implemented in succeeding sessions until the final year is reached.

During the past four years, seven members of the staff have held fellowships providing opportunity for postgraduate and graduate study abroad. Five of the eleven one-year fellowships held by these staff members were provided by the W. K. Kellogg Foundation. The Kellogg Foundation has now indicated that it would consider proposals from this Faculty for a further five-year teacher training programme. Twelve members of the present staff have had one or more years of graduate training abroad and in addition an equal number hold a graduate or postgraduate degree or diploma from Toronto. The influence of the men who have had additional training of one or more years' duration is reflected in the number of research projects now going forward in the Dental Building, and in the number of papers published by the staff during the 1949-50 session. A review of the records in relation to these two criteria indicates that research projects in progress have increased from a total of nine, four years ago, to nineteen today; and papers published have risen from four to twenty-six in the same period.

Alterations in the Dental Building during the session have included much-needed additional bookshelf space in the library; consolidation of the limited space available in the Radiology Department, and the installation of a Broadbent-Bolton

cephalometer, Higley cephalostatic equipment, and a Hodge's maxillo-facial unit; major alterations on the fourth floor to provide separate quarters for the expanding programme of postgraduate, graduate, and continuation courses; and new headquarters for the Orthodontic Department.

We take this opportunity to acknowledge with grateful thanks the generosity of several donors who have given funds to establish awards and support special projects. These include: Dr. Francis J. A. Daly (2T3) who provided for the Mary Adele Daly Scholarship in memory of his wife; the Alpha Omega Fraternity for the Alpha Omega Fraternity medal; Dr. W. C. Leggett (1T6) who provided funds to support research projects involving animal experimentation; and the Ladies' Auxiliary of the Academy of Dentistry, Toronto, for funds to be used in the treatment of dental abnormalities in needy children.

There are now available to undergraduate students registered in this Faculty twenty-eight individual awards. A total of 69 students received financial assistance during the session through scholarships, bursaries, and loans.

In January fortnightly research seminars were introduced. Under the leadership of Dr. J. B. Macdonald a large number of the members of the staff attended these seminars, which were designed to give opportunity to discuss phases of the many research projects under investigation. The enthusiastic attendance at these seminars encourages us to plan for them on a permanent basis.

Eleven short concentrated courses were given during the session with a total registration of 196 dental graduates from all over Canada and the United States. We acknowledge again the substantial support of the W. K. Kellogg Foundation in this programme.

The series of lectures broadcast by telephone from the University of Illinois was included in the programme of postgraduate and continuation courses. Attendance at the lectures was limited to members of the staff of this Faculty.

Thirty-six lectures were arranged in co-operation with the Royal College of Dental Surgeons in twenty-seven different Ontario centres, with approximately 1,047 dentists in attendance.

Many graduates availed themselves of the opportunity to obtain advice on difficult or unusual cases which occur in practice. A total of 185 formal requests were received during the session.

In addition, the dietary analysis service which is used as a routine measure in the Faculty Clinic was made available to graduates. Approximately 700 individual diets of caries susceptible patients were analysed and recommendations made for preventive measures in these cases.

The loyal co-operation of the staff during this period of overcrowded classes has made possible the changes which have been effected during the session, and the advancement of the previous high standards.

R. G. Ellis

Report of the Dean of the School of Law

The year 1949 will stand as an important milestone in the development of legal education both in Ontario and in the University. To appreciate that importance some reference to historical background is necessary.

Because the legal profession in Ontario never sought, and on many occasions refused, the assistance of the universities in educating for the profession, the development of faculties of law in Ontario has been unduly retarded. That a university of the standing and prestige of Toronto should not teach law at all is, of course, unthinkable. From its inception the University can point with pride to a long line of distinguished professors of law. Its Faculty of Law, originally formed in 1887, never became an effective reality until 1941 since, from the time of its origin, the Law

Society of Upper Canada refused to give any recognition for academic work in law done elsewhere than at its own school at Osgoode Hall. This is in marked contrast to the situation in every other province in Canada where the services of university faculties of law have long been welcomed by the profession.

As a result of the efforts and labour of my predecessor, Dr. W. P. M. Kennedy, the value of a faculty of law in a well-rounded programme of university life was amply demonstrated. His struggle to revivify the old 1887 Faculty of Law and to keep alive a tradition of law teaching at the university level, regardless of the Ontario profession's failure to accord recognition to such teaching for admittance to practice, was as courageous as it was fruitful. It was his work that made possible the changes of 1949 and it is because of the foundations that he laid that the future which he foresaw as a possibility has now become an actuality.

In 1949, certain events occurred in Ontario in connection with legal education which emphasized the desirability of strengthening the University's role in providing a liberal and professional education for persons contemplating the practice of law whether in Ontario or elsewhere in Canada. The Board of Governors accordingly decided to give full support to the development of the School of Law as a professional faculty.

While the School of Law had, before 1949, a programme of professional training, in the main its efforts were directed to providing instruction for students of the various colleges taking an Arts degree in Honour Law who could, after an additional year's work at the School, obtain an LL.B. Usually, Ontario students did this last year's work during their attendance at Osgoode Hall Law School. As the Ontario profession gave no credit for any work in law done at the University an attempt was made to offer, as far as possible, courses in law subjects other than those which a student would take at Osgoode Hall. To some considerable extent there would be overlapping but, in the main, this was the University policy.

In 1949, with the strengthening of the School of Law by the addition of three full professors, formerly on the Osgoode Hall staff, it was felt that the time had come when the University should discard these self-imposed restrictions. Accordingly the School undertook the task of reorganization and the planning of a complete and rounded programme of legal studies for persons who would be admitted to its School with a B.A. degree or its equivalent, or at least two years' satisfactory work in a university after Grade XIII standing or its equivalent.

This meant the gradual elimination of instruction in law subjects to relatively immature students in the undergraduate course, and the establishment of a programme, really on the postgraduate level, which would direct the entire time of a student to the development of legal reasoning and the acquisition of a scientific habit of thought in the common law discipline. The objective sought was the provision of a thorough liberal and professional education for persons contemplating the practice of law, who may participate in other ways in the administration of justice, or who may deal in public or private affairs where a sound knowledge of law and legal method and an appreciation of the nature and function of legal ordering are indispensable.

In providing a complete professional training in law, the University has no wish to monopolize or even to compete with other professional bodies in the legal education field. It does seek to play a part in the training of lawyers for practice and public responsibility. Acknowledging the right of the various provincial law societies to govern admission to practice and to stipulate conditions of entry to practice, the School of Law seeks the co-operation and assistance of the various law societies in Canada. The University of Toronto has been able to assist the College of Physicians and Surgeons of Ontario in the education of medical practitioners and the Royal College of Dental Surgeons of Ontario in the education of dentists by working in close co-operation with and satisfying the minimum requirements prescribed by these bodies. There is no reason for believing that the School of

Law could not perform an equally useful purpose for the Law Society of Upper Canada as well as the governing bodies in other provinces.

Coincident with the establishing of the reorganized programme in the School of Law came the first recognition by the Law Society of Upper Canada of any course in law other than its own. Graduates of the School of Law who are admitted with a B.A. degree are now exempted from two years of the Law Society's four-year programme of instruction for intending members of the profession. At present, while other provincial societies give the same credit to our graduates as to graduates of their own provincial schools, the Ontario profession requires that students attending the University School take a year longer than students who proceed directly to the Law Society school after graduation in Arts. With the co-operation of the profession in Ontario it should be possible to remove the burden and expense of this extra year which falls on our graduates contemplating practice in Ontario. This co-operation between the Ontario profession and the University School is one which should be developed and will, no doubt, be extended by mutual trust and understanding.

The establishment of a professional school recognized, fully or partially, by the legal profession as educating candidates for practice, placed on the School of Law a responsibility both to the University of which it is a part, and to the profession for whom it trains and to and from whom it desires to give and receive the utmost co-operation. From one point of view the inclusion of law schools in universities may seem a paradox. There may appear to be a conflict between the aims of a university in pushing back the frontiers of knowledge with no immediate object of practical value and the short-term professional competence which the training for membership in the legal profession might seem to demand. It should be the function of a university school to avoid a clash between these two objects. This can only be done if emphasis is placed on law as concerned with problems of human relations and society and by refusing to translate "professional" as mere expertness in existing technique.

In an effort to bridge the gap between the facts of practice and the theory of the classroom, between law in books and law in action, the School of Law last year made an experiment by appointing in addition to the full-time members of the staff in charge of various subjects, Associates, each a leading practitioner in his field. The duties of an Associate are, first, to supply a series of junior demonstrators, also from the practising profession, who will take students through actual problems as they have come up in recent times and integrate them with the work of the classroom; and, second, to be available for discussion and advice on the course of study so that the School never becomes too far removed from current facts. This year Associates and demonstrators were appointed in three courses—trial practice, companies, and conveyancing. In addition, students of the second year in trial practice spent three weeks on a tour of courts, court offices, gaols, etc., under the supervision of competent demonstrators in order to relate their work to the actual conditions in which law operates. The co-operation and support of the fifteen members of the profession who acted as Associates and demonstrators was most gratifying. The results have been successful beyond our expectations and the method will be extended to other courses as experience dictates. Beginning with the session 1950-1 the three weeks' tour of the courts for the second year will take place early in September in advance of the opening of formal classes.

This year has been one of transition involving difficulty in the arranging of courses (1) in the remaining years of the Arts course in Honour Law, (2) in establishing a programme and staff for the new three-year LL.B. course, (3) in providing for an unusually large number of students who spent full time on the fifth year of the old combined B.A.-LL.B. course with a view to practice in jurisdictions other than Ontario and (4) in arranging graduate work with three candidates for the D.Jur. degree and two for the LL.M.

The enrolment in the first year of the new LL.B. course was 39 students which, while not large, was highly satisfactory in the light of the confusion at the opening of term concerning the position of graduates of the new course so far as recognition by the Ontario profession was concerned. As long as the Law Society insists on graduates of the School having spent five years after a degree in Arts before admission to practice as against four for Law Society students, it is probable that enrolment of Ontario students, by reason of expense alone, will not exceed the numbers of last year to any extent. Students from other provinces will, however, probably increase judging from inquiries to date. Students entitled to enter the third year of the old Honour Law course in Arts were given the option of transferring to the second year of the new LL.B. course. All transferred save one. A somewhat similar pattern may be expected for next year.

With a staff which this year is the equivalent in strength and numbers of any other law school in the Dominion, and which in 1950-1 will be augmented by the addition of Professor Wolfgang Friedmann and Assistant Professor Milner, the School of Law can face the future with confidence that it has laid the foundations for what may well become a national school, particularly in postgraduate work. Already known for its work in that quarter, there are indications that the quality of its staff will increasingly draw students from other countries as well as from other provinces in Canada. The School, however, feels that as a strong undergraduate programme must be the basis of sound postgraduate work its immediate problem lies in building the former. The latter will inevitably progress when that has been done.

In my predecessor's report of last year, reference was made to the unsatisfactory condition of the library and the inadequacy of the School of Law building. Events of 1949-50 only lend added strength to his remark that "a new law building and a modern law library must soon be considered." The present building will be inadequate to house even members of the staff before the end of the next session, to say nothing of the increased student body. Furthermore, the absence of any common room, indeed any room where two or more students may meet, talk, and smoke is a matter of serious concern. That students studying law derive more benefit from discussion of problems with fellow students is so well known that at the Harvard Law School it is said that fellow students should be blamed for any failures rather than the teaching staff. Until this year most of the students attending the law school, being members of Arts colleges, found facilities for this sort of thing in their own college. With students' activities now centred solely in the Faculty of Law this is no longer possible, and the problem cannot long be ignored.

It is unfortunate both for staff and for students that a law building with its own law library is not at the present time available. The co-operation of the Library staff in a time of great overcrowding has been magnificent, but to law students, a law library is the counterpart of the scientists' laboratory. Facilities for students are quite inadequate at the present time, while working conditions for graduate students and staff are almost impossible. During the year the staff has used the daily services of a "runner" to fetch and carry books from the Library. While a help, this device cannot take the place of actual contact with the reports and other documents that a researcher never knows he will need until he gets amongst them. Through the generosity of A. R. Clute, K.C., the law building acquired the nucleus of a departmental library when he donated his own law library to the School for use there. While far from complete even as a working library this does give the staff a feeling of having at least some of the tools of their profession in a place where they can be used to advantage.

During the year, through the co-operation of the School of Graduate Studies, Professor Julius Stone of the University of Sydney, Australia, visited the School and lectured on "Social Structures and Legal Institutions" and "The Myths of Planning and Laissez-Faire." Later in the year Professor Wolfgang Friedmann of the Uni-

versity of Melbourne was a visitor, and the School sponsored a public lecture by him in Hart House Theatre, which about 400 persons attended, on "The Planned State and the Rule of Law." Other visitors included Mr. Justice Rand of the Supreme Court of Canada and W. P. J. O'Meara, K.C., Assistant Under Secretary of State.

Considering the lack of a building as a centre for student activities and the confusion attendant on any year of transition, the spirit and co-operation of the student body were exceptionally good. Taking their place for the first time in inter-faculty sports and S.A.C. activities, the law students brought an enthusiasm that more than compensated for their small numbers.

For the teaching and administrative staff, on whom fell the task of organizing the administration and operation of an independent and self-governing faculty, which was still participating as a disappearing department in the Faculty of Arts, I express unbounded admiration. In addition to the many problems that faced the School last year, there was a virtual fusion of two groups of law teachers from different schools on a common faculty, with a new course of study, a new programme and—worst of all—a new Dean. That the year was highly successful is a tribute to the capacity for making adjustments which at all times is the mark of a trained lawyer and which my colleagues exhibited in abundant degree.

C. A. WRIGHT

Report of the Director of the School of Architecture

The session 1949-50 is the second session since the School was established as an administrative entity in the University organization. In this session the first of the large classes, composed almost entirely of service men, graduated from the School. Many members of the class had spent several years in the services before entering the five-year course and quite a few were married and had family responsibilities. From their first year, when they were enrolled at Ajax in the Faculty of Applied Science and Engineering, these mature students have shown qualities of leadership which were most helpful during the period of expansion of the School. I am sure that their influence and enthusiasm will be felt in a wider sphere when they take their places in the profession.

The student organization, the Architectural Society, was very active this session. Under its direction the first number of a year book, *Cross-Section,* was published. This year book of ninety-six pages is handsomely presented; it describes in detail activities of the year, many of which are illustrated by photographs. The Society was also responsible for "The Train of Tomorrow"—the amusing and ingenious float which won the Alumni award at the Homecoming Weekend in November. The Society continued the ambitious plan of the year before of inviting internationally known architects to speak. Mr. Buckminster Fuller of the Chicago Institute of Design spoke in Convocation Hall and Mr. Marcel Breuer of New York in the theatre of the Royal Ontario Museum.

Individual students have also brought credit to themselves and the School. The Pilkington Scholarship for which the five schools of architecture in Canada compete was won by Irving Grossman of the fifth year. The scholarship is donated by Pilkington Glass Limited who pay the successful student $1,500 plus his travelling expenses to England.

Warren Smale, also of the fifth year, was awarded a Dominion Government scholarship in the amount of $1,500 to attend a course in industrial design at the Chicago Institute of Design. Harvey Beecroft who was awarded a similar scholarship last session had his scholarship renewed for another year.

The content of the course in Architecture has been continually under revision as will be seen by the Calendars of recent years. In keeping with the trend in the

best professional schools, greater emphasis has been placed on the humanities. Each of the first three years now has a course in English conducted by the Department of English in the Faculty of Arts.

Serious consideration has been given to the handling of failures in the important subject of Architectural Design, term work. A student who fails in this subject will be required to spend a term of a succeeding session concentrating on Design before he may proceed to a higher year. Formerly a failure in this term work subject was removed by an examination, without staff instruction.

Beginning with the session 1950-1, the higher admission standards of third-class honours in each of the four subjects of the Grade XIII examinations will come into effect. This should result in a lower percentage of failures in the first year. Owing to limitations of accommodation, only 37 students were admitted to the first year in the session 1949-50. As a result of this selection a record low percentage of failures occurred in the first year.

The problem of accommodation is still a pressing one for the School. From an academic standpoint it is a serious handicap to have the drafting rooms in a different building from the library, offices, and rooms for model making and for drawing and composition. It is hoped that a solution to this problem will soon be found.

This session, under the chairmanship of Mr. Bruce Brown, M. Arch. 1925, the Architectural Alumni has been formed as a component of the University Alumni Association. It is expected that a closer bond will be developed between the graduates and the undergraduates which should lead to their mutual benefit. From the point of view of the School we welcome it wholeheartedly.

This report would not be complete without an expression of appreciation to the members of the staff who have assisted so capably in the handling of the large numbers of students in a course which requires so much individual instruction. The continued co-operation of the Faculty of Applied Science and the assistance of other faculties are much appreciated.

H. H. Madill

Report of the Director of the School of Physical and Health Education

In my first report as Director of the School of Physical and Health Education I may, perhaps, be allowed a few general reflections.

As long as the universities continue to offer technical training for a variety of professions, the justification for the existence of many courses will be called in question. It is to be borne in mind, however, that culture does not reside solely in the humanities. It is an attitude of mind rather than a body of knowledge and is to be found in any subject or course that inculcates clear thinking and correct estimation of values. It is the danger of going to extremes that the technical courses need to avoid. To try to equip the student for every possible situation he may meet later in his professional activities is neither possible nor desirable. He will meet life best whose horizon is broad and whose mind is trained; but to think, one must have "spare" time, and a loaded curriculum is the very negation of the university spirit.

In this School the crowded time-table gives the Council serious concern. We are trying to deal with it by a process of closer correlation of subjects and by the elimination of overlapping. To this end conferences of instructors have been most valuable; they have done much and can do more.

The very nature of our course attracts an excellent type of student, but one pre-eminently athletic-minded. The danger inherent in that situation—if it be a danger—we are meeting by emphasizing the more academic side of our course. This, I venture to think, is bearing fruit. English is now a compulsory subject in each of

the three years. In this connection it is necessary to record that the course in Literature and Expression has had to be dropped.

It is pleasant to record the happy relations that exist between the School and the directors of physical education for men and women. Mr. Warren Stevens and Miss Zerada Slack know intimately our problems and, with their efficient staffs, give us unstinted co-operation.

For the first time, the School offered an intensive camp course in Toronto. This was on a voluntary basis and was held immediately following the session. Had it not been for the organizing ability and foresight of Miss Dorothy Jackson, we should have been overwhelmed. We anticipated about 30 or 40 applicants; we were inundated by over 100 enthusiasts! What to do another year is yet to be decided.

It is with regret that we record the resignation of Miss Charlotte Layton, our secretary since the inception of the School. It is hard to say who will miss her the more—staff or students. We wish her many years of happy retirement.

The number of students entering the course is reaching a normal figure. Nearly 80 graduated this year, but our freshman class was about 70. We hope this latter figure will not be exceeded. It is our ambition to be in a position to scrutinize and select so that our graduates will continue to reflect on the School that high credit which its reputation deserves.

H. A. Cates

Report of the Director of the School of Social Work

In many respects this past year has been another one of consolidation of previous gains. But although important changes were few, the life of the School was vigorous in the extreme and it was a heavy year for staff and students alike. The comparative stability made it possible for the Director to take leave of absence from mid-December until the end of March, to act as United Nations Adviser on Social Welfare to the Government of Egypt. During this period direction of the School was ably carried by Professor Charles E. Hendry, who assumed an unusually heavy load of work and responsibility.

The total number of students was 205, a substantial increase over the enrolment of 184 in the preceding year; but the number of full-time students was smaller, 135 as compared with 139. There were more men than women among the full-time students (71 to 64), and more than half were war veterans. Increasingly careful screening of applications and the rejection of unsuitable candidates go far to explain the relatively good record of degree candidates, only 2 of whom failed their examinations outright. However, 7 others had withdrawn during the year on the advice of the faculty or for other reasons. At the Spring Convocation 78 students were granted the B.S.W. degree, and 2 the M.S.W. degree. Of the 45 M.S.W. candidates, 39 are enrolled in the summer session of 1950 to complete their research projects, with the hope of gaining their degrees at the Autumn Convocation. In the autumn of 1949, 16 students were granted the Master's degree out of 43 candidates who had begun their work the previous year.

Experience thus far has shown that out of every 100 candidates for the B.S.W. degree, about 50 go on directly to the second year in the School as candidates for the M.S.W. degree, but that no more than half of these complete the requirements fully within the two-year period. The record shows that the Master's degree is being awarded sparingly, only to strong students.

Again the graduating students have been besieged with offers of positions, with the demand for graduates far exceeding the supply.

Although nearly half of the full-time students in the School (65) received D.V.A. educational benefits, there was need for much additional financial assistance; and the amount of $21,482 which the School was able to grant from its

various scholarship and bursary funds was none too much to meet student needs.

Changes in the teaching and supervisory staffs were fewer than in previous years. Miss Ray Godfrey was appointed Lecturer to succeed Miss Eda Houwink, Assistant Professor; Dr. Cameron C. Gray was appointed Special Lecturer to take over course 107, "Medicine and Social Work 1," formerly offered by Dr. Trevor Owen. Professor F. Clyde Auld, of the Faculty of Law, was appointed as Special Lecturer to offer course 106, "Law and Social Work," previously taught by Dr. Kenneth C. Gray. The staff of field supervisors consisted of 50 different persons, serving in 29 social agencies, of whom 17 were "Unit Supervisors," including 5 new appointees, Mrs. Laura Doyle, Miss Dorothy Card, Mrs. Helen Palca, Mr. Reginald Bundy, and Miss Helen DeMarsh.

The staff worked very effectively as a team on problems of curriculum, field work, internal administration, and planning for the future. Following extensive faculty discussion of the previous year, a substantial memorandum entitled "Principles of School Policy" was drafted as a guide to faculty thinking and planning. Professor Leona Massoth and her colleagues put a great deal of time and effort into the improvement of the field work programme, concentrating upon study of the content of instruction to first-year and second-year students; into a time study of the way in which the students' time in the field was actually utilized; and into a survey of agency resources. A major result was to bring the School and the co-operating agencies in the Toronto community closer together and to increase the assumption of responsibility for field work by agencies.

Field visits for all students were again arranged during "Field Trip Week" in the spring term, the high light of which was the trip of a team of two faculty members and seven students for four days to Kirkland Lake. The "General Seminar," which was initiated as an experimental attempt to help the students grapple with questions of philosophy and professional responsibility, led to valuable results, and will be carried on again. Faculty discussion of plans for the future led to proposals for some modification of the courses in psychiatry, for improvement in training for medical social work, for a certificate programme in recreation, and for development of a Ph.D. programme.

The Wednesday Lecture Series was continued, with lectures being offered by Professors Frank H. Underhill, John S. Morgan, Charles F. Comfort, and Harry M. Cassidy of the University; Brigadier Milton F. Gregg, Minister of Veterans Affairs; Mr. William M. Anderson, General Manager of the North American Life Assurance Company; Dr. Eugene Forsey, Research Director of the Canadian Congress of Labour; and Mr. Robert T. Lansdale, Commissioner of Social Welfare for the State of New York.

The extension programme consisted of one evening course in case work during the winter, three short courses for special groups, and five week-end workshops (including one in Windsor and one in St. Catharines), with total enrolment of 426 persons. The Ontario Department of Public Welfare again requested short courses on child welfare, and Miss M. E. Hatch conducted two of these, each of a month in duration, during May and June, for staff members of Children's Aid Societies throughout the province. At the request of the Unemployment Insurance Commission the School arranged a course of seven weeks beginning in June on "Counselling in the Employment Service," under Professor John S. Morgan, in which 20 specially selected officers of the Commission from all parts of Canada were enrolled.

Faculty members offered courses or lectures to students in Medicine, Hygiene, Nursing, Physical and Health Education, Trinity College (Divinity), and the Ontario College of Education.

In addition to the research work of the year, which is reported separately, there was considerable planning for the future, with three substantial projects

being arranged for the academic year 1950-1. The Central Mortgage and Housing Corporation granted $9,000 to permit Professor Albert Rose and a staff of graduate students to make "an experimental study of local housing survey techniques," with field work to be done in the city of Brantford during the summer of 1950. The Defence Research Board has made a substantial grant to permit Professor C. E. Hendry and staff to study welfare and recreational problems and services of the armed forces during the late war. This work began in June, with Mr. Joseph E. Laycock as Assistant Director. The third project planned for the coming year is a study of the socio-economic aspects of mental health, to be financed by a special grant from the Mental Health budget of the School and to be carried on by a research associate and a research assistant to be appointed.

The staff continued to make many contributions to community service. Professor Charles E. Hendry left the School before the end of the spring term to serve as director of an institute on inter-cultural relations in Paris and to study community organization in Scandinavia as the holder of a United Nations fellowship in social welfare. The Director served as President of the National Committee of Schools of Social Work, and Professor Stuart K. Jaffary as President of the Canadian Association of Social Workers and of the Canadian Penal Conference. Professor John S. Morgan was Associate Director of the Canadian Welfare Council survey of welfare services in New Brunswick during the summer and autumn of 1949. He and the Director appeared as witnesses before the parliamentary committee on old age security in May. Professor Alan Klein again toured western Canada in May and June to offer institutes on recreation under the auspices of the Canadian Welfare Council.

Again the School was much assisted by a special grant towards administration and bursaries from the Department of National Health and Welfare in the amount of $13,150. The special Mental Health programme of the School, initiated in the preceding year, was carried on and much extended by virtue of a grant of $42,300 from Dominion Mental Health funds made available through the provincial Government.

During the course of the year the President authorized the formation of the "Consultant Committee," to consist of representatives of organizations and interested groups outside the University concerned with the work of the School. The Committee held two meetings, and helped the faculty materially with its advice. A welcome and helpful visitor in April was Miss Sue Spencer, Executive Secretary of the American Association of Schools of Social Work, who was able to report that the Association would accept the School's invitation to hold its next annual meeting in Toronto in January, 1951. The Association has accredited the specialization in group work and recreation offered by the School.

After five years of reorganization and rapid growth the School has much in the way of progressive achievement to report. But there are still many problems calling for sustained attention: the building of a research division supported by special funds; continued development of the faculty; further improvement of specialized areas such as medical social work, recreation, community organization, and public welfare administration; critical analysis of the curriculum, including the place of field work; establishment of a Ph.D. programme; the recruiting of students with better undergraduate preparation; and the expansion and stabilization of finances. In view of its past achievements and its present position, it seems not unreasonable to hope and to expect that during the next five or ten years the School should be able to cope with these problems and to emerge as an institution of distinction in its own field and of honourable repute in the University.

HARRY M. CASSIDY

Report of the Director of the School of Nursing

As the session of 1949-50 closes, we look back on one of the most difficult years in the history of Canadian universities, a year characterized generally by increasing responsibilities and decreasing resources. Although some of this University's faculties and schools have had slight easing from this strain as a result of a reduction in student registration, the School of Nursing has not had this relief: on the contrary there has been an increase in enrolment and also in the variety of teaching required. Should resources remain equal to the task, this increase could be a continuing and progressive feature.

The year has shown improvement in the general development of the new five-year course leading to the professional degree (B.Sc.N.). The general organization has been strengthened, more stability developed, and standards raised. In addition the School is in a better position in two other features of fundamental concern, namely, the selection of students from applicants of a higher calibre, and the development of teaching staff with the double qualification demanded for adequate work in a professional school of a university. Wisdom and patience are needed in selecting this staff from the holders of a glittering array of new professional degrees; but this must be the situation for many another new professional school on the American continent today.

Much the larger number of the students registered in the School are in the courses which offer special studies for graduate nurses. In this field, the school is serving the Ontario Government in two separate divisions of the Department of Health, and is under constant pressure from this Department in the effort to supply key personnel for the social services (both hospital and public health services) which our communities will not be denied. In this connection, the role assigned to a university school is twofold: first, it must prepare public health nurses with social wisdom and an understanding far beyond technical training; and, secondly, it must provide teachers for the nursing schools, as well as officers especially prepared to undertake the supervisory and administrative duties involved in the wise and effective conduct of nursing in the expanding number of general and special hospital services. In the offering of preparation for teaching, we have much in common with a college of education; as the latter takes a selected group with a certain basic preparation, that is in the Faculty of Arts, so this school must make a selection from the graduates of the hospital nursing schools. The ages and general background of the two groups must be almost identical; one group is rich in book experience while the other is rich in life experience, with each needing the complementary equipment held by the other. In both cases these schools are trying, in one year, to offer a maturing and broadening educational opportunity and at the same time to provide some technical competence.

One special activity of the University in the past few months has held great interest for all of the professional schools, namely, the organization of the new general course in the Faculty of Arts. The special committee responsible for this work has produced a report of significance for all, as all must sympathize with the thought expressed in it regarding the role of the Faculty of Arts in the University's provision of general education, and the responsibility which this Faculty should assume in this connection. For these reasons, may we venture to hope that there will be a continuing committee with which the University's professional schools may—and must—confer over a long period in order that a clear philosophy regarding the significance of our University's degrees may emerge. Thus, no longer should there be the continuous argument and confusion regarding substitutions for the traditional subject-matter of university study, or discrepancy in standards in the one institution. Obviously there must be some development in the subject-matter of general education as offered by the most conservative of the liberal arts or philosophy faculties of the oldest of universities: even Toronto's new general course

includes subjects which could not have been listed a century ago. But, in spite of this development, and indeed because of it, we require clear thought for the guidance and protection of every school, resulting in decisions which will be made by the professional schools and the Faculty of Arts working together. The need for this help is most obvious in this new School of Nursing, which is bombarded with requests from far and near for short degree courses for graduate nurses, courses which are not more than two years in length and which, moreover, are largely technical in content. Already these courses are available in many of the universities in Canada and in many in the United States. It is apparent that this procedure is based upon the assumption that three years of enrolment in a hospital nursing school plus two years in a specialized technical course in a university school of nursing should be considered as meeting the requirement for a university degree. In this School, we have felt unable to commend this policy. Instead we have restricted graduate nurses to a certain choice: (*a*) the three-year Pass Course in Arts; or (*b*) the one-year technical courses provided in our School of Nursing, which lead only to a certificate. Is this attitude justifiable? Should Toronto alone withstand the demand for degrees? Or, approaching the question more constructively, what alternative offerings should be made? Other professional schools of the University must be dealing with similar demands. Should each one make its decisions alone, or should there be immediate, regular, and sustained conference with the same committee that has been engaged for the past two years in the Faculty of Arts? It must be noted that it is the employers of nursing services who have set these degree requirements, some of which are reasonable (for instance, in the preparation of the teachers for nursing schools, and for certain other groups), but some quite unreasonable. The dismaying result of our failure to offer short degree courses is that the aspirants for the senior teaching positions in Canadian nursing schools turn away from Toronto and its relatively ample board; thus every year our resources (in one particular course) are used largely by candidates from other countries, usually highly qualified, clever young women who will return to older countries, where *so far* a degree is not a necessary qualification.

This report of 1949-50 must pay grateful tribute to the Alumnae Association of the School, and its President, Edith Dick, who is doubly a graduate of the University of Toronto (Trinity College and the School of Nursing), and who has therefore a deep interest in the institution. With Miss Dick, the members of the executive committee have given services which have demanded the sacrifice of personal strength and leisure to a degree for which no adequate thanks can ever be given. Gratefully we make this acknowledgment. We acknowledge also the generosity of the members of the teaching staff in their increasing response to demands for community service; in undertaking this service they are influencing to a marked extent both national and international policies and practice in their professional field. All of this activity lays a heavy strain upon a staff which is barely large enough to cover the regular teaching programme.

The School is expanding its work under the Mental Health grant from the provincial Government, and some slight progress is being made in a field where much hard work and patient research will be required before appreciable results can be obtained. In this, as in all teaching for graduate nurses, the School is conditioned by the selective processes (or the lack of these) in the schools which give the basic courses that produce these graduate nurses.

The Kellogg Foundation continues to offer an annual fellowship for a member of the teaching staff: this has been awarded for the coming session to Miss D. K. Duff who will study at Columbia University. Miss E. M. Howard has been invited to teach this year at the summer school of the University of Mississippi. We regret to announce that, at the close of this session, owing to ill health, Miss G. B. Carter is leaving Canada to return to her former home in England. Miss Carter will be missed greatly.

The statistical summary for the year appears elsewhere in this Report. This indicates that, in addition to extensive registration from Ontario, there have been students from all parts of Canada, as well as a selected group from abroad.

E. K. Russell

Report of the Director of the School of Hygiene

This year marks the twenty-fifth anniversary of the School of Hygiene, which was established in 1924 through the munificence of the Rockefeller Foundation. They provided for the construction of the original building and for an endowment fund to assist in the maintenance of the School. Postgraduate instruction for physicians in public health was first offered by the University of Toronto in 1912 in the Department of Hygiene and Preventive Medicine. Thirty-nine physicians obtained the diploma in Public Health from 1912 until 1924, at which time the School of Hygiene assumed this responsibility. In the first twenty-five years of the School's history, 435 physicians received the diploma in Public Health and 5 the diploma in Industrial Hygiene.

In 1945 a course leading to the diploma in Dental Public Health was provided; 17 dentists have completed the course of instruction in this field of public health. In the same year a postgraduate course in veterinary public health was introduced; 38 veterinarians have received the diploma. A course leading to the certificate in Public Health was also provided in 1945 for graduates in Arts and Science; 9 graduates have completed this course.

The most recent addition to the courses of instruction has been the course in Hospital Administration. Through the interest and financial assistance of the W. K. Kellogg Foundation, postgraduate instruction in this field was commenced in 1947. The course covers a period of two academic sessions. Fourteen candidates have received the diploma.

The number of graduates in Engineering who have been admitted to the degree of Master of Applied Science has substantially increased since the close of the war. During the past session 7 candidates completed the course.

When organized in 1924, the School of Hygiene consisted of three departments. Today there are seven departments and two sub-departments, with a staff of ten full-time professors, four associate professors, and six assistant professors. The departments provide courses for both postgraduate and undergraduate students. Last year the total number of students was 1,239, of which 110 were registered in a graduate course, 121 in Nursing, and 1018 in undergraduate courses. The School of Hygiene is one of the ten institutions accredited by the American Public Health Association. The course in Hospital Administration is separately accredited as one of the seven courses receiving approval in the United States and Canada. The School has a close relationship with the Faculties of Medicine, Dentistry, and Applied Science and Engineering, and with the Ontario Veterinary College.

During the past twenty-five years the financial requirement for the support of the School has increased fivefold. The generous provision made by the Rockefeller Foundation in establishing an endowment fund of $850,000 in 1924 has been of the greatest assistance. Postgraduate instruction in public health is expensive. In ten accredited schools of public health, the average cost per student last year was $6,400. This figure is in contrast with $3,200 for the School of Hygiene, indicating that expenditures here are a minimum. This has been accomplished, in part, through the assistance of the Connaught Medical Research Laboratories. Grants in support of research have been received from governmental and other bodies. These have included the Dominion Public Health research grants, grants from the National Research Council, the National Foundation for Infantile Paralysis, the National Cancer Institute of Canada, the Ontario Cancer Treatment and Research Founda-

tion and the Nutrition Foundation and special grants from the Rockefeller Foundation, the W. K. Kellogg Foundation, and the Department of Health of Ontario.

As in past years, the School has received fellows and members from teaching departments of institutions in many countries. These have come largely through the auspices of the Rockefeller Foundation and the World Health Organization.

R. D. Defries

Report of the Director of the Institute of Child Study

The Institute has this year carried on a full programme in the three aspects of its work, namely teaching, research, and childhood education and guidance. Twenty-three students received the diploma in Child Study, of whom 3 were in the Parent Education option and 20 in the Nursery Education option.

Twenty-nine students attended the course given for Kindergarten-Primary specialists as part of their regular Toronto Normal School training. Seven students received credit for completing the second year of the Lay Leader course in Parent Education.

A new option in Child Study was provided for graduate students proceeding to a Master of Arts degree in Psychology. Nine students were enrolled in this course and of these several prepared theses in child study under the guidance of the Institute.

Special courses were arranged for students in the School of Nursing. In addition to these regular training courses, a number of special courses were provided. Forty-two students completed a training course in Nursery Education for assistant supervisors. During the summer of 1949, 47 students attended a summer course in Nursery Education, which will be completed during July, 1950.

Upon the request of those engaged in parent education work in the community, the Institute arranged an advanced Parent Education course. An evening refresher course for a group of 39 nursery school supervisors was the result of a similar request.

As a part of the childhood education and guidance programme, three Parent Education groups were provided, attended by 67 participants, and the regular course was given for the parents of the Nursery School group.

The Nursery School of the Institute operated with full enrolment of 35 children. The programme of the Nursery School included not only child education but student training, demonstration, and research.

The research programme of the Institute was furthered by grants from the Defence Research Board of the Department of National Defence, and by grants under the Mental Health training programme. Our programme included a continuation of the regular developmental study which has been carried on for twenty-five years. Findings of this project are now being organized for publication. In addition to this project the Institute staff with the assistance of students carried out a continuous programme of research on the problem of security. Four M.A. theses were completed in this area under the guidance of the Director.

In addition to the above main areas of research, special studies were carried out dealing with early phases of social development and some investigation of methods of play therapy was made.

A not unimportant part of the Institute programme of the year has been the constant demonstration to special visitors from England, Australia, and South Africa, also special demonstrations arranged for kindergarten teachers and for hospital nurses.

This year the Director will participate in the Summer School programme at the San Diego State College, California.

W. E. Blatz

Report of the Director of the Institute of Industrial Relations

The staff of the Institute again made a contribution to teaching in various faculties, extending its scope to the School of Nursing, where Mr. Woodburn Thomson conducted some seminars on human relations, and to the Department of Psychiatry, where Mr. Farrell Toombs gave four lectures in a refresher course.

Research in "human relations" continued and was again facilitated by a grant under the Mental Health programme at the University. Four participant observers worked last summer under the direction of Mr. Toombs; six are working this summer under the direction of Mr. Thomson. Mr. Thomson and Dr. John Sawatsky made studies of organization in the Royce Works of the Canadian General Electric Company and in Mohawk Mills, Limited in Hamilton. Mr. Toombs has started a fifteen-month study of a Toronto hospital. Studies in collective bargaining were conducted by two fellows of the Institute, E. Schonning and H. J. Waisglass, both directed by Professor Logan; W. S. A. Martin, a research assistant, worked with Professor Finkelman on labour law.

The programme of group conferences was again extended, and two series were held in Hamilton in co-operation with McMaster University. A particularly valuable experiment was the series of conferences on human relations with a group of local officers of the Canadian Brotherhood of Railway Employees. On March 16 the Institute invited a number of representatives of both the labour congresses to a meeting addressed by Mr. Mark Starr, Educational Director of the International Ladies' Garment Workers' Union. On May 5 a one-day conference was held at which five visitors from the Massachusetts Institute of Technology spoke. This was attended by some 230 business, government, and University people. The Institute co-operated with the Canadian Broadcasting Corporation in producing four broadcasts on industrial relations on "Cross Section," a programme on the Dominion Network of the C.B.C.

On June 30 the Institute is formally dissolved; but its work is to be carried on as one of the functions of a new Institute of Business Administration. Indeed this dissolution symbolizes the assurance of the continuance as a regular part of the work of the University of what has been carried on for the last four years as an experiment financed by private subscription. To those subscribers the University is indeed grateful.

V. W. Bladen

Report of the Director of University Extension

During the session now closing, 703 students (almost all of them teachers) were enrolled in the Pass Course for Teachers and 155 others (all teachers) were preparing by correspondence for enrolment in the summer session of 1950. To have 858 teachers actively engaged in working towards the degree of Bachelor of Arts is gratifying and indicates that University Extension is rendering a most valuable service. Thirty years ago the first graduate in the Teachers' Course received his parchment and he was the only graduate that year. Since that time approximately 900 teachers have earned, by faithful and persistent study, the degree that means so much in the teaching profession. Many of those graduates are now filling some of the highest positions in education in Canada. In my opinion this is the most important activity in this Department and it is one of which I am particularly proud. It was the first undertaking of University Extension and the results of the work done in this way must be of enduring value to education in this Dominion.

Of evening classes we have three types; in the "academic" classes there were 1,399 men and 1,929 women; in the "business" classes there were 1,851 men and 142 women; and in the "Museum" classes there were 11 men and 125 women;

that is, a total enrolment of 5,457. For a peculiar reason this number is not as high as it was last year. For three sessions, including 1948-9, we tried the experiment of discontinuing evening classes at the middle of December and commencing new classes toward the end of February, the idea being that we might in this way avoid the difficulty created by inclement weather. But this arrangement did not work out satisfactorily because both the instructors and the more earnest students felt that justice could not very well be done to a subject in any time short of a continuous course of twenty weeks. Complying with many requests, we reverted to the former plan by which in almost all the subjects there are ten evenings during the autumn term and ten evenings during the spring term. Under the experimental arrangement we had no option other than to count all in the spring classes as new students when perhaps some of them had been in attendance during the autumn. Now that we have reverted to the old system, statistics give the impression of a decline in enrolment.

The course in Institutional Management continues to flourish, though now there are almost no veterans in this class. By many business men this course is regarded as an excellent training for young people whether they make the resort business their career or whether they undertake some other vocation. Even before the final examinations all the graduates of this course have obtained good positions and so far it has not been possible to supply the demand. Now that the Senate has approved an increase in the admission requirements so that applicants must have the same Upper School standing as is required for the Pass Course in Arts, it may be expected that this course will henceforth be on a more substantial basis than in the past.

During this session the Division of Public Safety has developed its activities and has won golden opinions from all who are interested in preventing accidents and saving lives. Courses have been held in Ottawa and in Windsor, as well as at the University, and plans are being made to carry this service to the Lakehead and elsewhere in the province.

After many years the courses in Occupational Therapy and Physical Therapy have been transferred to the care and supervision of the Faculty of Medicine. The former course was organized in 1926 and the latter in 1929 and it has always been my hope that those courses could some day form part of the Faculty of Medicine in which they naturally belong. Classes have not been as large since the graduation of the war-time groups, but I predict a successful future for the combined course in Physical and Occupational Therapy which comes into operation at the beginning of next session.

There was an enrolment of 1,925 men and women in correspondence courses which this Department conducts for the Canadian Credit Institute, the Certified Public Accountants Association, the Canadian Life Underwriters Association, the International Accountants' and Executives' Corporation, the Canadian Society of Industrial and Cost Accountants, the Chartered Institute of Secretaries, and the Insurance Institute of Ontario. These correspondence courses constitute an effective link between the University and the world of business. In our correspondence courses in Upper School and Commercial subjects there were enrolled 127 teachers who are working for higher certificates. In rather a surprising manner the certificate course in Business has developed and has made a genuine contribution to the business world. Now that it has been expanded, with the approval of the Senate, so that additional options are available, it will be popular with a good many young men and women who are working during the day and who are able to attend lectures only in the evenings.

If my observation is accurate, the trend in University Extension for the next few years will be towards providing instruction for people engaged in business and industry. With the Director of the new Institute of Business Administration I have discussed plans for co-operation between our two divisions. The Advertising

and Sales Club of Toronto and the Toronto-York Division of the Industrial Accident Prevention Association have been most co-operative in arranging for classes and courses for their members and others. The annual short course for fire chiefs and fire department officers was held in October and a firefighters' course was arranged at Kirkland Lake; besides, several short courses were carried on in co-operation with the School of Social Work and the Management Conference was held for four weeks in June. In addition, we have provided, in co-operation with the hospitals of Toronto, instruction in English, Anatomy, Physics, and Physiology for 16 young men and women (some of them veterans) who are taking the necessary training to qualify them as X-ray technicians.

From the year 1896 the University has been providing local lectures, sometimes called Extension Lectures or popular lectures, to organizations in various parts of the province and, until about 1939, there was a great demand for these lectures—in some years more than three hundred of them were given by members of the staff of the University. But times and tastes have changed and only twenty-four of these lectures were asked for in the course of the session. Probably radio lectures and radio music have supplanted popular lectures, and professors seem reluctant to travel when they have such heavy time-tables. We tried a series of radio lectures over the FM station recently established by the Ryerson Institute of Technology, an institution which has given this Department remarkably efficient co-operation in a great many ways.

The details of enrolment for the session are: teachers, 858; evening classes, 5,481; Institutional Management, 141; Occupational Therapy, 139; Physical Therapy, 57; correspondence courses, 2,052; Pedagogy (summer courses), 211; certificate course in Business, 138; Social Work, 249; nurses' course, 265; firefighters, 167; Public Safety, 242; X-ray technicians, 22. The total number of students enrolled for classes and courses in this Department during the session 1949-50 is 10,022.

W. J. DUNLOP

Report of the Librarian

There have been added to the Library during the year 15,462 bound volumes, and 444 pamphlets. The total number of bound volumes in the Library is now 508,736, and the total number of pamphlets 158,986. These make a grand total of 667,722 items.

The following are the statistics of the use of the Library by undergraduates in comparison with those for previous years:

	1921-2	1938-9	1944-5	1946-7	1948-9	1949-50
Reading room books . .	41,928	195,869	134,732	307,321	196,834	168,404
Overnight books	18,998	102,233	62,172	138,539	113,994	98,862
Week books	4,782	21,247	22,926	30,344	33,456	30,037
Totals	65,708	319,349	219,830	476,204	344,284	297,303

The following is a statement showing the total circulation in the Library during recent years:

	1925-6	1938-9	1944-5	1946-7	1948-9	1949-50
To undergraduates . . .	159,278	319,349	219,831	476,204	344,284	297,303
To professors and graduates.	20,000	41,439	39,091	56,955	63,108	60,262
Totals	179,278	360,788	258,922	533,159	407,392	357,565

It will be seen that there has been a decrease during the past year in the circulation of books among undergraduates of about 13 per cent, and in the circulation among professors and graduates of 4 per cent.

The circulation figures given above do not take into account the large number of reference books—about 26,000—replaced on the shelves by the assistants in the main Library during the past year, nor the very considerable circulation of books in many of the departmental libraries, nor the interlibrary loans. The total number of interlibrary loans during 1949-50 has been 2,444. Of these, 1,755 were books lent, and 689 were books borrowed.

During the past year the binding and mending department has prepared for binding 7,583 volumes, mended 2,779 volumes, and placed in pamphlet binders or boards, 1,170 volumes. During the year there were filed in the public catalogues a total of 41,662 cards.

During the past five years the University Library has been putting books in storage at the rate of about 15,000 per annum. All the storage rooms in the basement of the men's residences, which have a capacity of 75,000 volumes, are now full. Since the University architects have been instructed to draw plans for the addition to the University Library building, it is to be hoped that the plans may be completed and the construction begun at the earliest possible moment. If there is any delay in the completion of the addition to the Library building it will be necessary to find further storage space.

W. S. WALLACE

Report of the Director of the David Dunlap Observatory

The Observatory continues to make a major contribution in the field of radial velocities of the stars. Under the auspices of the International Astronomical Union, the Carnegie Institution is this year publishing a comprehensive catalogue of all the known radial velocities, as determined anywhere. It is estimated that about 14,000 stars will be included. The David Dunlap Observatory, from its published and unpublished work, will supply data for almost 1,800 of these stars. For another 850 stars currently under observation the data will not be completed for about two years. The whole Observatory staff participates in these large programmes.

In the field of stellar photometry the Observatory has two main researches. Mrs. Hogg continues to add to her collection of photographs of globular star clusters. Her studies of variable stars aid in the determination of the distance of these objects, and also give information about the variables themselves. As our theories of stellar equilibrium advance, such studies of non-static stars become increasingly significant. Mr. Baglow has further modified the photomultiplier stellar photometer, to increase its stability and sensitivity. Studies of eclipsing stars with this photometer should supplement the radial velocity observations which have long formed a part of this Observatory's work.

Professor Williamson has continued his theoretical studies of atomic energy sources in stellar interiors; of microwave transmission in stellar atmospheres; and of production and distribution of radio-frequency radiation in the galaxy.

Professor Heard serves as chairman of the National Research Council's panel on navigation. While much of the emphasis is currently on electronic aids, the increasing altitudes, speeds, and ranges of modern aircraft are creating a new interest in navigating by the stars.

Observing conditions the past year have been below normal. With the 74-inch telescope actual exposure time was 913 hours, compared with a ten-year average of 1,140 hours; 1,141 spectrograms and 65 direct photographs were obtained. The 19-inch telescope was used on many nights with the photoelectric photometer. In addition 180 direct photographs, mostly of globular clusters, were made.

A number of donations have been received by the library. The most notable was the fine manuscript copy of Wales's observations of the transit of Venus, in 1768, made at Prince of Wales Fort (now Churchill, Manitoba), presented by Dr. J. B. Tyrrell.

F. S. Hogg

Report of the Director of the Royal Ontario Museum of Archaeology

Work in the Museum galleries continues in the attempt to modernize and improve the method of exhibition so far as available space allows. During the late summer of 1949 the Armour gallery was reorganized, and far-reaching changes made in other galleries on the main floor. Similar work has continued during the winter months, and is now concentrated on the African, the Flemish, and the Eighteenth-Century English galleries. The former Japanese Print gallery has had to be closed to make a study and storage room for the Far Eastern Department. This should improve and increase the research facilities for the Chinese collections of the Museum, and enable the display of these collections to be thinned out. The Japanese Prints are now exhibited in the adjoining gallery.

The policy of changing special exhibitions continues. A new series of summer exhibitions of collectors' material has been begun. These are made up jointly from Museum material and from private collections, if possible in Toronto. The series opened in the summer of 1949 with an exhibition of English and Canadian Silver. That for 1950 is of English and Irish Glass, 1680-1850. Two other important exhibitions were, first, "Books of the Middle Ages," a comprehensive picture of medieval writing and illumination, and second, "4,000 Years of Engraved Stones," showing seals, gems, and cameos of the Near East and eastern Mediterranean, from the earliest times to the fourth century A.D. Each was the first exhibition of its subject to be held in Canada, and both relied heavily on loans from museums, libraries, and collectors in Canada and the United States.

The Society of Canadian Painter-Etchers held their annual exhibition in the Museum galleries during March.

One of the most important tasks being carried out at present is a full classification and cataloguing of the material in the collections; this is being done jointly by the curating and Chief Cataloguer's departments. In some departments there is a considerable backlog of unclassified material, and this will take time to work over fully.

Research in the Chinese library during the year led to the discovery of fourteen books of the Sung period (A.D. 906-1279) and about a hundred of the Yuan period (A.D. 1280-1367). An exhibition of these is planned for the autumn of 1950.

Field work by members of the Museum staff during the summer of 1949 included Mr. Kidd's excavation of a Woodlands Indian site near Chatham. This was found to be dateable to about A.D. 1000-1200, and yielded an entirely new type of pottery, showing a trend towards the types in use in this part of North America at a much later date. The find is of great value in investigating cultural evolution.

Ontario textile research in 1949 was devoted mainly to work on three weavers of the Niagara Peninsula during the early part of the nineteenth century. A special exhibition, "The Weaving of Samuel Fry, Moses Grobb, and Abraham Nash," was held from October to December.

Dr. Elie Borowski, a Fellow of the Lady Davis Foundation, has been attached to the staff since May, 1949. Dr. Borowski's special field lies in glyptic art of the ancient Near East; he has been working through various parts of the Museum's very small related collection. The exhibition referred to above, "4,000 Years of Engraved Stones," is his work.

Miss Anne Thomson, a member of the Far Eastern Department, was granted a year's leave of absence from September, 1949, to be attached to the equivalent department at the Fogg Museum of Art, Harvard University. I have the sad task of reporting that she was killed in an accident in Cambridge, Massachusetts, on June 17, 1950.

Lectures were given by members of the Museum staff in the University Department of Art and Archaeology. Courses were also given to the students of the Department of Home Economics, and of the Ryerson Institute of Technology and the Sinden School of Design. Other lectures were given in three courses of the University Extension Service, and to many miscellaneous groups. The galleries were in constant use by the students of the Ontario College of Art.

Important acquisitions made during the year include a Chinese sculptured mortuary bed, a gift of the Reuben Wells Leonard Fund; a group of pieces of English silver, ceramics, glass, and furniture, the gift of Mr. F. N. G. Starr; Italian furniture and textiles, the gift of Mr. A. L. Koppel. Large gifts of furniture and silver were made by the Laidlaw Lumber Company and Major R. A. Willis, and of English pottery by Mrs. J. H. Plummer. Purchases included an Assyrian stone relief from the Layard Collection, and a pair of Chinese painted and lacquered wood figurines of about 300 to 400 B.C. Important loans were of two early Chinese paintings, one of the sixth and one of the seventh century, lent by Mr. M. R. D. Vos, Miss P. L. Vos, and Mrs. M. E. Moscovich, and of two Assyrian stone reliefs, lent by the National Gallery at Ottawa.

The Sigmund Samuel Collection of Canadiana gallery has been enriched during the year. Among many other acquisitions are an oil painting of Wolfe by Nathaniel Hone and one of Montcalm by an unidentified Canadian artist. The Collection is now of considerable size and importance and it is expected that during the coming year the move to the new Provincial Archives and Canadiana Building will be completed.

G. Brett

Report of the Director of the Royal Ontario Museum of Geology and Mineralogy

Field work has occupied much of the free time of the Director, Dr. V. B. Meen. In addition to a continuation of a study of the mineral occurrences of southern Ontario, visits were made to the new uraninite occurrence on Lake Superior, the copper-nickel mines at Sudbury, and the New Jersey Zinc Company mines at Franklin, New Jersey. A number of specimens, some new to our collections, were obtained.

In addition to research within the Museum, aid to research was given by the lending of specimens to other institutions for special study. Those aided were: the Department of Geological Sciences, University of Toronto; Department of Mineralogy, Queen's University; Department of Chemistry, McMaster University; Department of Mineralogy, Harvard University; United States Geological Survey.

Plans have been drawn up for a rearrangement of the exhibits in the two geological galleries. It is expected that it will take several years to carry out these plans but a beginning has been made this year.

The Museum continues to encourage an interest in mineralogy and geology among the public by sponsoring the Walker Mineralogical Club and a group of the Toronto Junior Field Naturalists' Club. Dr. Meen acted as co-organizer of the annual field trip of the Walker Mineralogical Club to eastern Ontario; and, with the assistance of Mr. Tovell, the scientific assistant, and Miss Ward, secretary, conducted a field trip of the Junior Field Naturalists' Club to Niagara to study the minerals and geology of the district. In collaboration with Major E. D. Taylor of Queen's

University, Dr. Meen conducted a field trip of the Washington, D.C., Mineralogical Society to Haliburton and Hastings counties.

Additions to the collections are as follows:

Presentations

Bornite from Coppermine River, N.W.T.; cerussite from Santa Eulalia, Mexico. By Mr. Frank Ebbutt, Toronto.

Cubanite from Copper Cliff, Ontario. By the International Nickel Company.

Fluorite crystal group from Victory Fluorspar Mine. By Mr. Martin Schwerin, Elizabethtown, Illinois, and Professor R. Barrett, Department of Mining Engineering, University of Toronto.

Fluorite and barite from Barrie Township, Ontario. By Dr. M. E. Hurst, Toronto.

Kyanite from Tanganyika, South Africa. By Dr. G. M. Stockley, Tanganyika.

Sepiolite from Ospwagan Lake, Manitoba. By Mr. P. A. Chubb, Toronto.

Skutterudite from Gowganda, Ontario; aikenite from Cobalt, Ontario. By Mr. Arthur A. Cole, Cobalt, Ontario.

Sphalerite and galena from Golden Manitou Mines, Val d'Or, Quebec. By Mr. Andrew Robertson, Val d'Or, Quebec.

Uraninite and gummite from Ruggles Mine, New Hampshire. By Dr. Ben. M. Shaub, Smith College, Northampton, Massachusetts.

Exchanges

Aurichalcite from Kelly, New Mexico; catapleiite from Norra Kärr, Sweden; chrysoberyl from South Dakota; creedite from Oruro, Bolivia; eudialite from Norra Kärr, Sweden; hiortdahlite from Arö, Norway; knebelite from Alno, Sweden; meteoric iron from Australia, Kansas, and New Mexico; witherite from Rosiclare, Illinois; zinkenite from Oruro, Bolivia. With Ward's Natural Science Establishment, Rochester, New York.

Brazilianite from North Groton, New Hampshire; arrojadite from South Dakota; ludlamite, whitlockite, wolfeite, and xanthoxenite from North Groton, New Hampshire; wurtzite from Etna, Pennsylvania. With Harvard University, Cambridge, Massachusetts.

Hanksite from Searles Lake, California. With Mr. M. Vonsen, Petaluma, California.

Josephinite from Josephine Creek, Oregon. With Mr. Russell A. Morley, Salem, Oregon.

Kyanite from Kioo, Kenya, South Africa. With Mr. W. Pulford, Nairobi, South Africa.

Purchases

Apatite from North Burgess Township, Ontario. From Dr. W. F. Ferrier, Toronto.

Barite from Cumberland, England; eudialite with rosenbuschite from Norra Kärr, Sweden. From Ward's Natural Science Establishment, Rochester, New York.

Rutile gemstone (synthetic), 16 carats, facetted. From Mr. G. G. Waite, Toronto.

Brazilianite gemstone, 3 carats, facetted. From Mr. Edward Swoboda, Los Angeles, California.

V. B. Meen

Report of the Director of the Royal Ontario Museum of Palaeontology

Field work during the past year has been on a scale not achieved for many years, and, as a result, large additions have been made to our collections. The contributions to the teaching of palaeontology in the University of Toronto have been considerable, not only through the instruction given by the Directors, but also by the use of the collections and facilities by both undergraduate and graduate students. Important research projects have been completed or are in progress, but research is not yet on a scale appropriate to our position as one of the world's larger palaeontological institutes. In addition to the two Directors, whose time must be given in part to University teaching, this Museum could provide a field for at least three additional scientific workers, two on invertebrate palaeontology, and one on vertebrate.

The high cost of supplies and labour, and the difficulty in obtaining certain materials, have greatly restricted the addition of exhibits to the galleries, but this situation is slowly improving. The skeleton of the Pliocene rhinoceros, purchased

in 1940, has at last been housed in a suitable case, and is now installed in the place reserved for it in the gallery, where it makes a very impressive exhibit. Many new specimens have been added to the invertebrate series.

The largest expedition sent out during the summer of 1949 was that to the Tertiary fossil beds of Saskatchewan. This was made possible by a renewed grant from the Research Fund of the University of Toronto. The party, consisting of Messrs. L. Sternberg (in charge), R. R. Hornell, and A. Weare, left Toronto late in June, as mentioned in last year's statement. Transportation to and in the field was by means of a new truck, purchased with a loan from the Leonard Bequest. This truck was sold in Saskatchewan at the close of the field season, and the members of the field party returned to Toronto by train. A pleasant camp was established at the ranch of Mr. R. T. Stewart. The Hunter quarry was again worked, and a number of important specimens were, in consequence, added to our collections. Visits were also made to other Tertiary mammal-bearing deposits in southern Saskatchewan, and important specimens were obtained.

Approval was given this year to send a collecting expedition to the mammal-bearing Eocene of Wyoming. The services and field equipment of Mr. George F. Sternberg, of Hays, Kansas, were secured, and Mr. G. E. Lindblad, of our staff, joined him as collaborator. Camp was established, under rather difficult conditions, near Basin, Wyoming, and a large collection was made from the badlands of the Willwood formation. In addition to hundreds of teeth and jaw fragments, the collection includes two skeletons and several skulls. These fossils date from an early and very important epoch in the Age of Mammals, when the ancestors of modern groups were first making their appearance.

Field work in 1950 began in June. Dr. Fritz, accompanied by Miss Elvira Hammell and Mr. J. Monteith, went to Coral Rapids in the James Bay region to collect fossils from the important Palaeozoic localities in the vicinity. This expedition should not only add an important series of fossils to our collections, but should provide valuable information on the local geology. From these studies it is hoped to derive important conclusions on the fauna and flora of the area, in comparison with those of similar age elsewhere in Canada. Such work has an important bearing on the consideration of northern Ontario as a possible area for oil and gas exploration. This project is being financed by a grant from the University of Toronto Research Fund.

Other expeditions sent out in June include one by G. F. Sternberg and G. E. Lindblad to the Middle Eocene mammal-bearing deposits of south-eastern Wyoming, and one by L. Sternberg, R. R. Hornell, and A. Weare to the dinosaur-bearing deposits along Milk River, in southern Alberta. The work of these expeditions will continue into the new fiscal year, and will be reported on fully in the statement for 1950-1.

This Museum continues to render various services to outside institutions and individuals. Study and identification of specimens were carried out for Dr. B. F. Howell, of Princeton University, for the Geological Survey of Canada and the National Museum of Canada, for the Atlantic Biological Station, for the Department of Geology, University of Chicago, for Professor P. S. Warren, University of Alberta, for Mr. F. G. Bard, Provincial Museum of Saskatchewan, for Professor F. H. Edmunds, University of Saskatchewan, and for Dr. V. Rondeau, Rouleau, Saskatchewan. Specimens or illustrative material have been donated to Professor de Laubenfels, Hawaii, to Dr. A. McAlpine, Notre Dame University, to Professor G. E. Hutchinson, Yale University, and to the Department of Geology, McMaster University. Specimens have been loaned for study or temporary exhibition to Professor Alexander Petrunkevitch, Yale University, to Dr. M. LeCompte, Brussels, Belgium, to the Royal Ontario Museum of Zoology, and to the Division of Education, Royal Ontario Museum. A skull of a fossil rhinoceros was sold to Augustana

College, Rock Island, Illinois. Special instruction was given to a study group of the Junior Field Naturalists' Club.

Special lectures have been restricted to an address by Dr. Fritz to the Hamilton Nature Club, entitled "Through the Ages to Primitive Man." In the field of research, Dr. Fritz has completed a study of fusulinid material from northern British Columbia, and also the investigation of material submitted by Princeton University and the University of Chicago. A paper on a new order of corals, the Multisolenida, was completed, and has since been published. Much time was given to research in Ordovician stratigraphy, for a course of twelve lectures to graduate students. Supervision was given to the research work of five graduate students.

Dr. Russell completed his report on the geology of the Cypress Hills, Saskatchewan, and a more theoretical study on Cretaceous-Tertiary correlation; these have both been published. More recently he made a study of a giant fossil fish from British Columbia, for the National Museum of Canada. The Tertiary mammals obtained from Saskatchewan and Wyoming have been given much attention, but a large amount of work on these remains to be done. It has been possible to prepare a preliminary report on the significance of the Saskatchewan finds.

The specimen catalogue requires constant attention, and Mr. J. Monteith has spent any time available from his secretarial duties recording newly acquired fossils, and adding them to the collections. Mr. Bruce Liberty has been engaged part-time in cataloguing vertebrate fossils. In the preparation of specimens, Mr. D. Monteith has made much progress in the sectioning, grinding, and polishing of specimens for exhibition. Messrs. L. Sternberg, R. R. Hornell, and A. Weare have spent most of their time in the preparation of the fossil mammals from Saskatchewan. Mr. G. E. Lindblad has been working on the fossil mammals from Wyoming. Mr. Sternberg has prepared casts of various specimens and models.

The librarian, Miss E. Hammell, has added about 150 books and pamphlets to the library during the year.

Donations

Silurian fossils from the Arctic. By Mr. W. Gunn, Department of Zoology, University of Toronto.
Fusulinids from northern British Columbia. By Dr. D. R. Derry.
Sediments containing microfossils, Eocene of New Jersey. By Professor Helgi Johnson, Rutgers University.
Specimens of *Megalomus canadensis*. By Mr. R. Waines.
Collection of as yet unidentified pelecypods from the Dundas formation at Thistletown. By Mrs. W. H. Bush.
Large collection of fossils and casts of fossils. By Department of Zoology, University of Toronto, through Professor J. R. Dymond.
Mounted skin of gar-pike. By Department of Geology, McMaster University.
Valuable collection of old palaeontological publications. By Mr. W. M. Tovell.
Miscellaneous palaeontological papers. By Dr. Jack Satterly.

Exchanges

Cambrian trilobites (zone-markers) for Guelph pelecypods *Megalomus canadensis*. With Ward's Natural Science Establishment, Rochester, New York.

Collections

Ordovician and Silurian invertebrates, from Lake Temiskaming district. By Dr. Fritz and Mr. J. Monteith.
Carboniferous and Triassic conglomerates, from Bay of Fundy region. By Dr. Fritz.
Recent invertebrates, from Bay of Fundy. By Dr. Fritz.
Pleistocene mollusks, from Don interglacial beds. By Dr. Russell.
Large collection of Eocene, Oligocene, and Miocene mammals from southern Saskatchewan. By Mr. L. Sternberg and party.
Large collection of Lower Eocene mammals from near Basin, Wyoming. By Messrs. G. F. Sternberg and G. E. Lindblad.
Typical specimens of Tertiary mammal-bearing rocks from Saskatchewan, Montana, Wyoming, and Nebraska. By Dr. Russell.

L. S. Russell

Report of the Director of the Royal Ontario Museum of Zoology

The reorganization of the staff of the Royal Ontario Museum of Zoology was completed during the past year. This reorganization was necessary in view of the lecture courses being given by members of the staff to students in the Department of Zoology, and because the increased size of the collection involved more research work and assistance to other research institutions.

The Museum of Zoology now has five well-defined divisions, each with a divisional head known as a Curator, who is assisted by an Assistant or Associate Curator, a Research Assistant, and a Technician. The Curators, three of whom hold Ph.D. degrees from the University of Toronto, present courses to the students on their particular subjects. They are aided in this University work by the Research Assistants and Technicians. The Curators are in charge of the organization of their respective divisions, planning and directing research work for the divisional members and for University students.

The primary function of the Museum of Zoology is to build up collections of various species of animals as the basis for research in the subjects of taxonomy and distribution. As a result of past efforts, our collection now form the nucleus for research throughout the whole of Canada in these two fields.

Bearing in mind the necessity for having well-qualified men in charge of such important work, we are most fortunate to have added to our staff Mr. R. L. Peterson and Mr. W. B. Scott, both of whom completed the requirements for the degree of Doctor of Philosophy during the past year. Mr. Peterson will be appointed Curator of Mammalogy and Mr. Scott Curator of Ichthyology and Herpetology as of July 1, 1950.

No other university in Canada is as well equipped to present courses on taxonomy and distribution in all branches of zoology. This is due largely to the fact that the Museum of Zoology has such a large study collection representing not only the species of our own native fauna but also those of surrounding areas. During the past season, 280 lectures and laboratory sessions were conducted for University students by members of the curatorial staff. Such lecture courses were designed both for undergraduate and for graduate students.

Our research collections are growing rapidly. During the past year a total of 28,852 specimens were added, including such important contributions as the Kitto insect collection, the O. E. Devitt collection of bird skins and nests, a large collection of fish specimens from the Ontario Department of Planning and Development, and many valuable mammal specimens from the Ontario Department of Lands and Forests.

A number of important publications have appeared during the past year, and still others are now ready for publication. The Division of Mammalogy has published six articles, of both research and educational value. The Curator is at present completing his manuscript dealing with the distribution, taxonomy, and ecology of the moose in Canada. The Division of Ornithology has published nine articles of educational and research value, and a book dealing with the birds of Ontario is now awaiting publication by the Clarke, Irwin Company. The Division of Ichthyology and Herpetology is completing the manuscript for a scientific article dealing with Cisco research in Lake Erie and a book on the Amphibians of eastern Canada has been submitted for publication by the Associate Curator. The Division of Entomology published ten articles of scientific and popular interest, including a book entitled *Introducing the Insect* (Clarke, Irwin Company), in co-operation with the Associate Curator of the Division of Ichthyology and Herpetology.

It is most gratifying to find so many publications being issued by members of the staff of the Museum of Zoology, and we are looking forward to increasing this number in the near future. As a result of such publications, the Museum of Zoology is now looked upon as the focal point for information regarding animal life in Ontario.

We have been most fortunate, during the past few years, to have had the financial support of the Carling Conservation Club, the Nova Scotia Research Council, and the Research Council of Ontario in carrying out our field studies. During the past year a faunal survey of the Orthoptera of Nova Scotia, Cape Breton, and Prince Edward Island was made possible through a grant from the Nova Scotia Research Council. Caribou research and moose research were supported by a grant from the Carling Conservation Club. Small mammal population studies (dealing with animal fluctuations in numbers and home ranges), ectoparasite studies, and food habits studies were made possible by a grant from the Ontario Research Council. Of these various projects, only one is of a continuous nature, namely the study of the ectoparasites of animals. Since our collection of ectoparasites is so important in taxonomic research, it is hoped that eventually the Ectoparasite Laboratory will be made a division of the Museum of Zoology and maintained through the Museum's University budget. Food habits studies, however, are for the most part related to wildlife problems and hence arrangements were made during the year for the work of this laboratory to be taken over by the Ontario Department of Lands and Forests. The Museum of Zoology will of course co-operate in every way possible to assist the Department of Lands and Forests in their studies of the food habit relationships of animals.

A number of institutions look to us for assistance in the fields of taxonomy and distribution, in view of the importance of our research collections, and the publications that are appearing by members of the staff. Material is sent on loan for study purposes to various universities and museums throughout the continent; and research workers, particularly graduate students of other universities, rely upon us for exact information with reference to the various species of animals occurring in our part of North America. During the past year thirty-two universities and other institutions called upon the Museum of Zoology for assistance in identification of animal specimens and information dealing with distribution problems.

As a result of the lead now taken by the Museum of Zoology in the field of systematics, the Director was appointed Chairman of the Publication and Membership Committees of the Society of Systematic Zoology for Canada. The Associate Director, because of his outstanding contributions to the study of ornithology and the size and nature of the research collection of birds which he has built up over many years, is now a Fellow of the American Ornithological Union and has been called upon to revise portions of a forthcoming check-list of North American birds to be published by the American Ornithological Union. Mr. R. L. Peterson, in view of his contribution to the study of mammalogy, was called upon to serve as a member of the Board of Directors of the American Society of Mammalogists and also as a member of the Membership Committee of that Society, and of the Nomination Committee of the Wildlife Society.

In addition to requests for research assistance, the Museum of Zoology receives hundreds of inquiries every year concerning the identification of various species of animals. The Ontario Department of Public Health and the Department of Health of Toronto constantly refer questions concerning animal identification to us.

It is necessary at this point to emphasize the immediate need for more storage space for our collections. Much of our valuable material is at present being housed in makeshift containers which can be stored in any vacant space. This is due not so much to the lack of funds for the purchase of storage cabinets as to the shortage of floor space for such cabinets. The Division of Ornithology has had to place its study collection in two tiers, reaching almost to the ceiling, an arrangement which necessitates the use of a ladder in order to obtain specimens from the top tier of cases. In the Division of Entomology it is not possible to add a second tier of cases, and there is at present no vacant space in which to place cabinets to house some 50,000 specimens. In view of the growing importance of our research collections and the demands which are now made upon us by research workers the world

over, it is most unfortunate that we are unable to arrange these collections for ready reference and for protection against the multitude of insect pests which in a very short time will completely destroy valuable specimens.

Although the present emphasis of the Museum of Zoology is placed on research and education through the University, the staff has not lost sight of the importance of our gallery displays as an educational medium for the general public. The Division of Art and Exhibits has been completely organized, and now consists of a Chief and two qualified artists. During the past year this Division has arranged many seasonal exhibits of public interest; commenced a revision of the Zoology galleries within the limitations of the display cases; and has drawn up designs for a number of new instructive exhibits. The Chief of the Division has not lost sight of the importance of research in the field of art, and experiments have been carried out with reference to the use of plastics in making small-scale models of various species of animals. A three-foot scale model of the whale shark has already been produced using this new technique, and a six-foot model of the blue whale is now ready for casting in the same material. The Division of Art and Exhibits also co-operated in the scientific research of the other divisions by drawing up maps and graphs for publication, and in supervising a wildlife project on Pelee Island.

In spite of the lack of adequate storage space and funds for new gallery exhibits, the Royal Ontario Museum of Zoology has, during the past year, contributed a great deal to scientific study and public education. This has been possible because the Museum of Zoology has an exceedingly competent staff who co-operate in all matters pertaining to the University and the public at large. As a result of our reorganization we are looking forward to still greater contributions in the fields of education and research.

F. A. URQUHART

Report of the Supervisor of the Division of Education, Royal Ontario Museum

This year the Division of Education was organized as a separate entity after the Division of Extension was discontinued. The Committee of Directors of the Museum decided that Terms of Reference should be drawn up to direct our work. The introduction lays down these general principles. "The primary purpose of the Division of Education shall be to teach school classes and other organized groups in the Museum, and so far as is possible, throughout the Province. It shall perform education work of this nature in all the component Museums. The Division of Education shall be responsible to the Committee of Directors."

When it was decided to include the teaching of Toronto classes in the work of our division, the Toronto Board of Education agreed to give a yearly grant of $5,000 for the extra service entailed. (They wished us to teach approximately 700 classes a year.) As a guide to the classroom teachers in selecting the parts of the Museum where they wished the children to be taught, we made lists of topics which could be correlated with school curricula. But we did not want any narrow interpretation, because we know that the Museum has broad cultural values for people of any age. To quote our Memorandum to the Toronto Board of Education: "Certain basic facts will be taught, but the accumulation of knowledge is not our primary purpose. Rather we hope that, through Muesum visits, children will return to their classroom stimulated for research and study there and in the out of doors. History, to quote one of the children, 'will catch life and come out of the Museum cases.' "

The out-of-town groups who visit the Museum vary tremendously in size, special interests, and background. Sometimes a group can travel in the teacher's car, but bus transportation is most often used. Although the provincial Department

of Education makes some grants towards transportation, in the majority of cases the local schools themselves, or community organizations, finance the trips to Toronto. One high school at Flinton (Lennox and Addington) put on a minstrel show five times to raise the necessary money! The Public School Inspector for Northumberland County organized three large school journeys this year, and brought 1,015 children and their teachers from 75 rural schools. Because of the different interests and backgrounds of rural and urban schools, we try to keep the time-table for out-of-town groups as flexible as possible. Since the end of the war, the trend seems to be for some 500 communities each year to send school classes or other organized groups to visit the Museum. They number approximately 15,000 visitors annually. Usually these groups spend half a day in the Museum, and we hope and believe it is one of the best kinds of publicity for the Museum.

From our experience it seems that once in four years we can reach most of the areas which are too far away for visits to the Museum. Working in teams we have taken Museum objects into the classrooms and talked to some 50,000 pupils. This year the National Film Board asked if they might take pictures of this Museum travelling as part of their documentation of Canadian life. In such a large province as Ontario with widely scattered population in northern areas, only some system such as the use of a Museum truck could give really adequate service.

There are other ways of reaching undefined numbers in the province. Eight travelling cases with teaching notes have been circulating through some of the schools in distant areas. We have provided broadcasts for "Cuckoo Clock House" programmes and source material to the C.B.C. for the series "Saga of the Pioneers." To illustrate this same topic the National Film Board came to take pictures of the Museum models of Pioneer Life in Ontario.

Again this year the Saturday Morning Club has been a thriving organization. Although there are in Toronto many more recreation groups than there were before the war, both children and parents seem increasingly appreciative of the Museum Club. Not only are the children happily engaged in creative art activities, but they are learning to use and enjoy the Museum.

Through the co-operation of the University Department of Extension and the staff of other University departments, four Extension courses were given with an average attendance of 31 in each course. The courses were: "The Canadian House," "The Arts in England—Seventeenth Century," "Medieval Life and Art," and "English Pottery and Porcelain." Those enrolled in these courses took a keen interest in the work. It must be admitted, however, that numbers were small—another indication of the greater attraction of practical or vocational courses as opposed to those of a purely cultural nature.

Week-ends, especially Sunday afternoons, always draw large numbers. The majority of these people are likely of a different type from the usual week-day adult visitors—University students, Ontario College of Art students, teachers in training in normal schools, or out-of-town groups such as Women's Institutes. We are considering an informal flexible programme for some Sunday afternoons, which will meet the needs and interests of the visitors.

This year we have given special study to teaching methods and techniques in the Museum. Working with the keepers of the Museum collections as well as with Toronto inspectors, supervisors, teachers, and librarians, we have suggested classroom projects and activities as a preparation for the visit. We have also introduced special questionnaires to give the pupils a chance to participate in the lesson. Because the Museum space and facilities are so constantly in demand, we have not been able to make very extensive use of films or other audio-visual aids.

The research which we have been doing for several years in the teaching of natural history is showing results. Far more schools are choosing natural science topics, and we have been asked to give Toronto teachers an introductory demonstration of conservation.

This year two of our staff served on a committee doing research on the local history of Toronto. Film-strips have been made for the schools, tours to historic buildings and sites have been outlined; and a kit is being prepared of Archives material and other interesting illustrations.

Some of our research has been done in other museums. One member of our staff spent several days in Chicago; the two members of the Science staff are planning to take summer courses in Natural History. We sent a representative to the Ontario Historical Society annual meeting, and the Supervisor was asked to give a paper to the annual meeting of the American Association of Museums at Colorado Springs.

We are most grateful to the staffs of the four Museums for their help and co-operation throughout the year. The maintenance staff, too, by their friendly attitude and ready assistance have helped our programme to run smoothly.

ANALYSIS OF ATTENDANCE AT THE ROYAL ONTARIO MUSEUM FROM JULY 1, 1949, TO JUNE 30, 1950

A.	*Using R.O.M. Galleries and Studies*		
1.	General public		202,567
2.	School classes		
	(i) Toronto		24,963
	(ii) Province		
	Museum	16,522	
	Teachers' trips	10,847	27,369
	(iii) R.O.M. staff		
	(iv) Unconducted (technical art classes, etc.)		3,592
3.	Groups other than schools		
	(i) Ontario College of Art		14,240
	(ii) Extension		9,787
	(iii) R.O.M. staff		970
	(iv) Unconducted		1,244
	(v) University of Toronto		6,625
B.	*Using Theatre and Lecture Rooms*		
1.	University of Toronto		112,225
2.	R.O.M. sponsored		5,814
3.	Unsponsored		56,984
	TOTAL		466,380

C. I. STEELE

Report of the Director of the Connaught Medical Research Laboratories

This is the thirty-seventh annual report of the Director, the Laboratories having been established in 1914. Year by year the Laboratories have fulfilled their purpose in the advancement of preventive medicine and public health through research and through the preparation of essential biological products. From their inception the Laboratories have shared in the development of postgraduate instruction in public health at the University of Toronto, and both in staff and in work are closely related to the School of Hygiene. During the past year their work, particularly in medical research, has been extended and important contributions have been made in several directions.

The Laboratories are organized in four divisions which are housed separately: the College Division, sharing the School of Hygiene building; the Spadina Division, occupying the former property of Knox College on Spadina Crescent; the Dufferin

Division, twelve miles north of the University; and the Western Division in the University of British Columbia, Vancouver.

The staff of the Laboratories at the close of the year numbered 427, of whom 68 were university graduates.

The total number of products prepared by the Laboratories is now sixty-eight, including those used in veterinary medicine. During the year, 4,056,000 containers were filled with products and 1,703,000 packages were prepared. The continuation of the trend toward the use of multiple-dose packages, instead of single-dose, has resulted in a slight decrease in the number of containers and packages, although the total volume of products distributed has again increased.

From the commencement of this work, the Laboratories have endeavoured to make available essential biological products at the lowest price commensurate with high quality. This has been accomplished, especially, in the supplying of vaccines and serums and in the production and distribution of insulin preparations. As a result of research and the co-operation of the packing industry and the druggists of Canada, it has been possible to furnish insulin preparations at prices substantially lower than in many other countries.

Similarly, much has been accomplished in the preparation of liver extract, for the treatment of pernicious anaemia, and material of the highest quality has been made available at minimum prices. It is of interest to note that the extract prepared by the Laboratories contains at least 15 micrograms of vitamin B_{12} per cc. Intensive clinical study of this vitamin is being made throughout the world.

One of the most important developments during the past year has been the large-scale preparation of heparin made possible through improved methods developed by Dr. Edith Taylor and Dr. A. F. Charles. The value of this product in the treatment of cardiac cases, in surgery of blood vessels, and in the prevention of post-operative complications, is becoming increasingly recognized. During the year, the quantity produced has been increased threefold and the quality further improved.

Of great medical interest is work being done in the study and preparation of ACTH. Through the support of the Department of National Health and Welfare and the National Research Council, and with the co-operation of provincial governments, intensive work was undertaken in December by Dr. G. A. McVicar, assisted by Miss K. E. Armbrust. They have been successful in preparing this important product from the pituitary glands of hogs, and further effort is now being made to improve the methods in order that a large yield may be obtained. The co-operation of the Canadian packing industry has made possible the collection of hog pituitary glands in abattoirs from coast to coast. Again the value of the Laboratories in the immediate investigation and development of new products has been demonstrated in the work with ACTH during this year.

Throughout the years the Laboratories have continued to take part in the national Blood Transfusion programme conducted by the Canadian Red Cross Society in co-operation with the Dominion and provincial governments. Dr. A. M. Fisher continues to direct this project in the Laboratories.

In the veterinary field, large quantities of *Brucella abortus* vaccine have been supplied to the Ontario Veterinary College for use in Ontario, and to the departments of agriculture in other provinces. Rabies vaccine, used in controlling hydrophobia among dogs, has again been made in quantity, and large volumes of serum have been prepared for the control of shipping fever. These products have been supplied to the Dominion Department of Agriculture. Dr. E. G. Kerslake has continued to direct the production of veterinary products, assisted by Dr. H. K. Chen. Dr. V. C. R. Walker has made important contributions in the distribution of these products.

Under the direction of Mr. M. D. Orr, the Dufferin Division of the Laboratories has recorded a year of outstanding accomplishments. The value of the facilities

which the Laboratories possess in this division in the extensive farm property and well-equipped laboratory units is being realized more and more, particularly as research in the study of virus infections is extended. Essential to the work of the Laboratories are the animal-breeding colonies. During the past year over 120,000 white mice, nearly 8,000 guinea pigs, and 1,500 white rats were raised in these colonies.

Miss Ruth M. Briggs, the Librarian, has again recorded a substantial increase in the use of the library and its facilities. The library serves not only members of the staff but also graduate students and undergraduates in the School of Hygiene. This is another of the important contributions made by the Laboratories to the work of the School of Hygiene.

In the Spadina Division are located the administrative offices, including purchasing, stores, and shipping, the accounting, and the personnel offices. The Superintendent of the Laboratories is responsible for the servicing of the buildings, the maintenance of roads, water supply and sewage disposal systems for the Dufferin Division, and the provision of engineering services for the three divisions in the Toronto area.

Dr. A. M. Fisher was appointed an Assistant Director in April. Dr. J. M. Corkill, Dr. J. F. Crawley, and Dr. A. L. Tosoni were promoted to the rank of Research Associate and Miss K. E. Armbrust, Miss E. M. Lang, and Miss G. S. Slinn were made research assistants. Dr. V. C. R. Walker was appointed Administrative Assistant and Associate Veterinarian, and Dr. Chen, Assistant Veterinarian.

The Director and his colleagues desire to express their appreciation to Dr. Balmer Neilly, retiring Chairman of the Connaught Committee of the Board of Governors, for the outstanding service which he rendered during his eleven years in this office. Through the war years and the difficult post-war period, Dr. Neilly gave generously of his time to the Laboratories and evidenced a never-failing interest in its work. Dr. J. S. D. Tory has succeeded Dr. Neilly as Chairman.

R. D. Defries

Report of the Warden of Hart House

The past year has been of special significance in the history of Hart House, as of the whole University, in that it marked the waning of the tide of veterans following World War II. Although we still have a substantial number of ex-service men in our midst, and will continue to have them for the next few years, their proportion has now decreased to a point where it is true to say that a new generation has arrived to make its influence felt in Hart House, as in the University. It is impossible to mark the passing of the veteran generation without expressing a tribute to their influence which all of us have felt. Their maturity of outlook and sense of responsibility set a standard probably quite unprecedented in University history and one not easy to maintain.

Numerically the membership of Hart House has passed the peak as was expected, but the relative numbers for undergraduate and senior members show an interesting trend. The total membership for the session 1949-50 stands at 10,136 as compared to 10,283 in the previous year. But, whereas the undergraduate membership has declined for the third consecutive year, the graduate membership has increased from 1,270 to 1,617 within the past three years. The faculty membership in Hart House remains constant at 119.

One of the trends which it was expected would follow the passing of the veterans has failed to materialize. In my report last year I referred to the obvious pre-occupation of veterans with their academic studies and our consequent anticipation that in spite of decreased numbers the extra-curricular programme at Hart House

would be taxed more heavily than ever due to the increased number of students coming in from high schools with more leisure for extra-curricular activities. This has not proven to be the case except for the athletic programme. It is worth noting that the activities of the following committees and clubs were not nearly as well supported in the past session as in the past three years: the Glee Club, the Chess Club, and the Bridge Club; the Debates, with the exception of the special debate on March 27 at which the Prime Minister, the Right Hon. Louis S. St. Laurent, was the Honorary Visitor and which was crowded to overflowing; most of the Sunday evening and Sunday afternoon and all the Wednesday afternoon musical recitals; the library evenings; most of the talks in the Art Gallery.

This reduction in numerical participation in no way reflected the energy of the committees concerned, the quality of the programe offered, or the interest of those fewer members who did take part in these activities. In fact, it is probably fair to say that seldom, if ever, has the House had keener committees than those which served in the past session, especially as regards Debates, Music, Library, Art, and The House.

The reasons for the drop in numbers may be varied and complicated. By the students themselves it is usually attributed to the ever increasing opportunity for activities of every kind with keener rivalry and conflict of dates and publicity. There may be other and deeper reasons which reflect changing patterns of interest and behaviour.

If Hart House is to fulfil its proper function within the University it must be sensitive to such changing patterns. The use of leisure and recreational tastes are an increasingly significant part of a person's education—for in no other way can one attain a rounded and balanced life in these days of narrower specialization and keener competition.

As one measure to correct the existing situation the Board of Stewards have appointed an undergraduate to co-ordinate publicity for the Hart House programme and to serve in a liaison capacity with other student bodies in the University. At the same time no stone must be left unturned to stimulate student interest in the worth-while things the House has to offer and provide opportunities for development of new creative interests.

It is hoped that the development of the Caledon property as a base for healthy outdoor activity and for a variety of arts and crafts and an interest in conservation, will offer a new, stimulating experience to a good many members and their friends.

In the field of art Hart House was able to bring two exhibitions of special interest by co-operating with the other art galleries of southern Ontario: one exhibition was representative of the interesting work now being done in New Brunswick and the other represented the three Prairie Provinces. The sketching classes conducted by Carl Schaefer were as popular and successful as ever. The permanent collection of the House was enriched by the following purchases: "Qualicum Beach" by E. J. Hughes, "Children and Ducks" by Lucy Jarvis, "Boy and Butterflies" by Aba Bayefsky, two water colours by Bertram Brooker, "Lost City" by F. Brandtner, "A Fish Family" by J. W. G. Macdonald, and "Haliburton Impressions" by L. A. C. Panton. The House is extremely indebted to Mrs. Velyien Henderson for her kind gift of two paintings by Cornelius Krieghoff in memory of her husband, Dr. Velyien Henderson, former Professor of Pharmacology and for many years a member of the Finance Committee of Hart House. These pictures now adorn the alcove in the Library. I should also mention the gift by Mr. Thomas A. Stone, the Canadian Minister to Sweden and Finland, of the new volume *The Ancient Glass of Canterbury Cathedral* which has been placed with our collection of private press books.

The Music Committee has devoted a considerable portion of its budget to expanding the library of records in the new Record Room which is proving immensely popular and is efficiently run by the Committee.

The religious discussion groups under the auspices of the Student Christian Movement were more vital than ever before and may reflect the stimulating effect of the University Christian Mission.

The Tuesday informal discussion group continued to grapple with imaginative problems in the best tradition of a university, such as "Is Humanity Earthbound?" or "Shakespeare's Greatest Tragedy."

The food services of the House, in the Great Hall, in the other dining rooms, and in the Tuck Shop and Lunch Room continue to be taxed to capacity and are overcrowded during meal hours. The smooth functioning of these services reflects not only efficient and cheerful work on the part of the staff, but exemplary patience and forbearance on the part of our members.

This report would not be complete without a special tribute to the late Leslie Jenkins, whose sudden death was a severe loss to the House and his many friends. It is no exaggeration to say that the influence and fame of an institution depend primarily upon the degree of devotion and loyalty of its servants and Mr. Jenkins gave himself unsparingly.

N. Ignatieff

Report of the Acting Chairman of the Board of Syndics of Hart House Theatre

In the session 1949-50 the Theatre has continued the policy of the previous year. Four major plays were staged, namely: *Crime and Punishment* in the Rodney Acland version, *Fortune my Foe* by Robertson Davies, Molnar's *The Guardsman*, and *Othello*. Each played for seven nights, with an average of four of the seven being sold out. About a hundred students took part in these plays and 75 per cent of the audience were students. The number of subscribers increased about 15 per cent over last year. For the fourth year in succession the Theatre's box-office and rental income has risen.

The Theatre was occupied 198 times, including rehearsals for the Hart House plays. Various undergraduate bodies held the stage with seventeen plays or entertainments, and twenty-one other societies rented the Theatre. These productions ran from one to six nights. If the average attendance were as low as 300, the total number of spectators would be over 50,000.

The interior of Hart House Theatre is falling into a serious state of disrepair. The floor of the auditorium is in bad condition; loose tiles in the sloping entrance corridor are a potential cause of danger to hurrying spectators; squeaking seats interrupt the performance and an occasional protruding spring damages clothing. One or two polite claims have been settled.

The Syndics wish to record their warm appreciation of the artistic and technical skill, the energy and understanding with which the Director, Robert Gill, and his staff have inspired and guided the work of the Theatre and maintained its very high standard of acting, staging, and costume. During the week of the Central Ontario Drama Festival the adjudicator, Maxwell Wray, gave hearty praise to the efficiency with which the Theatre was conducted on both sides of the curtain; the Business Manager, James Hozack, is entitled to a large share of this eulogy.

To the Board of Governors the Syndics desire to express their gratitude for generous financial support, which, it is hoped, has been justified by results, and without which the Theatre would be dark.

R. K. Hicks

Report of the Director of the University Health Service

The health of the students has remained excellent. No epidemics have occurred. Attendance at the Health Service has decreased slightly, but not proportionate to the decrease in University registration.

During the year, our Tuberculosis Survey has resulted in the withdrawal from the University of eight students found to be suffering from active disease. Again, of those to whom our Survey facilities were extended on a voluntary basis, only about half attended. It is hoped that some time it may be possible to hold the Survey coincident with registration, and to ensure the attendance of all University personnel, so that it may be fully effective.

The Men's Infirmary had its busiest year. The Victoria College Men's Infirmary was discontinued after Christmas, from which time we have had the privilege of providing infirmary service to all male students resident in Victoria University.

The Director and our psychiatric consultant visited six of the most important American universities to study their psychiatric facilities and programmes. Once again, the Departments of Psychology and Psychiatry helped in presenting, through the year, lectures based on some of the more pressing problems of student mental hygiene.

During the period of final examinations, we were again deluged with requests for certificates of ill health in support of petitions for consideration on medical grounds. While we recognize that most of the students presented a real, although often a minor reason for expecting consideration, we deplore this tendency to seek excuse. If an acute illness during the examination or immediate pre-examination period interferes with the student's performance at an examination, it appears reasonable that some allowance should be made in assessing his marks. Yet, if for reasons of either mental or physical ill health, he fails throughout the year to assimilate or organize his prescribed studies, then surely his final absolute deficiency is no less than it would be if it resulted from any other cause.

A plan has been developed whereby next year we will provide for the care of all athletic injuries within generous limits, and also give facilities for physiotherapy and physical rehabilitation following these injuries.

In collaboration with the St. John Ambulance a course of instruction in First Aid was offered to the premedical and early medical years during the spring term. In future years it is hoped to extend this instruction to other faculties.

The Director and Assistant Director attended the annual meeting of the American College Health Association, at which the former had the honour to be elected Vice-President of the Association. During the year, he continued to act as Chairman of the Association's Committee on Administration.

There have been extensive changes in the Health Service personnel. We record with regret the death of Dr. Hollie McKinnon, for many years a valued physician in the Women's Division. The Assistant Director, Dr. W. B. Stiver, resigned to accept the appointment of Medical Director of Physicians Services Incorporated, which is sponsored by the Ontario Medical Association. The Director, Dr. C. D. Gossage, is retiring at the end of the session to become Associate Medical Director of the Confederation Life Association. Dr. G. W. Wodehouse succeeded Dr. Stiver on his retirement in April, and will succeed Dr. Gossage as Director during the coming session. Dr. W. F. MacKenzie, formerly Senior Staff Physician at Ajax, will be the Assistant Director.

C. D. Gossage

Report of the Chairman of the University Advisory Bureau

A survey of the Bureau's activities during the year under review reveals a consolidation of trends noted in earlier reports.

Evidence continues to accumulate in support of the view that the Bureau is unique on the campus by reason of its function rather than the clientele it serves. That function—in essence educational—consists in providing a neutral zone where

the student may with impunity come face to face with himself and in the process grow towards greater maturity. Consultations at the Bureau on subjects such as course selection, course difficulty, study habits, vocational choice, personal problems arising out of social, emotional, and mental immaturities, appear to be sought indiscriminately by ex-service and civilian students alike. Significantly, too, those offices on the campus to which the Bureau is most intimately related—the Health Service, the Placement Service, the Registrar's Office—find occasion for referral of students to the Bureau without distinction as to any previous service affiliation.

Assurance that the Bureau is useful to more than a special segment of the population is further provided by the increasing communication with the secondary schools. During the year the Executive Secretary spent two week-ends at one of the private schools of the province, counselling individual students of the graduating class, and on another occasion he delivered the opening address at a Career Day Conference in a collegiate institute of the city. And with growing frequency students in the upper high-school grades are individually seeking consultation at the Bureau.

Proceedings of the fifth annual Conference of University Advisory Services held at McGill in June made clear that these trends are national rather than local in scope. The conference, adopting as its theme the transition of the advisory service from a temporary post-war expedient to a permanent integral function of higher education, focused attention on matters pertinent to such a concept.

During the past year the Executive Secretary served as Secretary on the national executive of the University Advisory Services and the Advisory Bureau was again the co-ordinating centre for the national organization. With the re-election of Mr. Jones to the secretarial post Toronto retains the opportunity to make a national contribution.

W. Line

Report of the Director of the University of Toronto Placement Service

The conclusion of the second complete year of operation of the Placement Service has confirmed the soundness of the fundamental policies under which the department was formed. It was apparent that the demand for university-trained personnel during the year was due to the normal turnover of business rather than to the exigencies created by war conditions which had previously influenced recruitment. The continuing peak of graduates, therefore, presented a challenge to the resources of the Service and a test of the relationship established with employers. It is gratifying to observe that the estimated percentage of employment at the end of June is very close to that established in 1949 at the same time.

Industry has been much slower in confirming its requirements this year. The majority of firm openings were reported subsequent to April 1. Despite this, the number of new companies visiting the campus during the spring term was appreciably greater than during the preceding year. It was observed that these employers were more selective than during previous visits. Consequently, the restricted time allotted for interviewing resulted in a smaller group of applicants being seen by individual interviewers. In no instance, however, did an industrial employer refuse to consider direct applications from undergraduates who had been unable to see them on the campus. The Placement Service assisted these students by forwarding applications on the required form, but as no record is kept of casual inquiries, the number of undergraduates so affected does not appear in the tabulation of work accomplished by the department.

In order to husband the facilities of the Service and utilize them as economically as possible, it was necessary to divide the work of placement into three distinct

areas during the year. Full-time employment for graduates and part-time work for those graduates who had left the University in 1949 or earlier was promoted under the direct supervision of the central office. The placement of the senior year of the class of 1950 was carried out in departmental areas during the academic year by means of notice board postings and prearranged interview schedules with visiting industrial recruiting officers. The obtaining of part-time and summer employment for undergraduates was continued as a function of the clerical staff of the Students' Administrative Council.

Following the commencement of examinations, the remaining applications from undergraduates in the respective academic departments were made active in the graduate file and from that time individual notifications of potential openings were sent out.

A noticeable feature of summer employment during this year has been the complete absorption of third-year undergraduates from technical courses. This should result in a closer relationship between these men and industry which will facilitate their introduction to such firms on graduation. The sustained demand for undergraduates this year for summer employment permitted the University to place a number of seniors in similar positions, particularly from courses which have been temporarily affected this spring by a reduction of opportunities in specific Canadian economic fields.

The Service has been fortunate in the sincere co-operation of the Alumni Federation during the year. The Director has been privileged to attend executive and general meetings in several of the branches. Winnipeg, Fort William, and Lindsay have set up committees to act in a consultant capacity with the Service in their respective geographical areas. The draft handbook for branch use specifically mentions the co-ordination of activity possible between the Federation and the Service.

Once again, the department acknowledges its appreciation of the efforts of other non-academic agencies in the placement of graduates of the University. The professional societies provided many openings for their members. Five hundred and forty-eight senior Engineering undergraduates registered with the Technical Service Council. Eight hundred and seventy-six senior undergraduates registered with the Executive and Professional Branch of the National Employment Service who provided the University with approximately 670 additional openings for notice board posting in other than public service or teaching fields.

The following tabulation gives a summary of the work passing through the central office during the two years of its existence.

	1947-9	1949-50
Undergraduates and graduates registered with Placement Service	1,629	1,443
Interviews at Placement Service office	2,005	1,982
Full-time jobs listed directly with University exclusive of public service and industrial campus interviews	1,643	1,564
Referrals	2,891	4,782
Reported placements of registered graduates through all channels	456	738
Registrations made inactive other than by direct placement	107	475
Registrations from graduates in active employment	146	170
Reported number of companies holding interviews on campus	44	54
Estimated number of scheduled interviews in senior year by company representatives	3,300	3,000

J. K. BRADFORD

Report of the Director of Athletics and Physical Education for Men

During the past year the Department of Athletics and Physical Education has provided a diversified programme for the largest number of men in the history of the University. It is gratifying to report that over 2,000 men were given instructional

classes in the required Physical Education programme, on playing fields, in the gymnasiums, and in the swimming pool. The activities included soccer, borden ball, speedball, basketball, volleyball, conditioning exercises, swimming, diving, water polo, and life saving.

Training courses for volunteer instructors were offered to men in all years. A group of 32 volunteer instructors with previous training assisted with the athletic and gymnasium activities and 54 with the aquatic programme. It should be noted that 343 men qualified for life saving awards of the Royal Life Saving Society and 447 passed the swim tests of the Canadian Red Cross Society.

The general trend of physical education at this University has been away from calisthenics, apparatus, mat work, and other formal activities. The present programme developed over the last four years allows for instruction and participation in team games, individual type sports, and other physical education activities. Instructional sound films were shown on soccer, volleyball, basketball, swimming, diving, life saving, and water safety.

In addition to the 2,000 and more men who elected to take instruction and participate in the required Physical Education programme, 2,500 others participated in intramural athletics, playing on 274 teams and competing as well in 27 tournaments or meets. There is some duplication in the total figure of 4,500 but a conservative estimate indicates that at least 3,500 men took advantage of the programme offered by this Department.

It is disturbing to know that there are several thousand others who cannot take part in this programme owing to the lack of adequate indoor athletic facilities. The Athletic Wing was constructed for a very much smaller student body, and this Department cannot meet more than approximately 50 per cent of the demands placed upon it.

In addition to meeting the requirements of the intercollegiate teams, the required Physical Education programme, and intramural athletics, the staff in this Department provided instruction in Physical Education for 80 men enrolled in the School of Physical and Health Education.

W. A. Stevens

Report of the Secretary of the Athletic Association

During the past year Toronto captured more than half of the intercollegiate championships for competitive sports, eight senior championships out of sixteen and seven intermediate championships of a total of twelve. However, none of the coveted "Big Three" fell to this University, viz. football, hockey, and basketball.

Intramural athletics again provided the main outlet for the athletically inclined of the student body, and 4,574 persons participated in 19 different sports, or 2,580 individuals after making allowance for those competing in more than one sport. We have found it necessary to go outside Hart House for additional gymnasium space, and through the co-operation of Victoria College a minor league basketball series has been run off in the Victoria College gymnasium for the second year in succession. Further expansion in this department must wait until more gymnasium space can be provided.

It should be pointed out that McGill and Western, and in some respects Queen's, now have better gymnasium accommodation than Toronto, and our aim must be to obtain a new gymnasium building as soon as funds and a suitable site are available.

The most important development during the past year has been the decision to enlarge the Stadium, the additional seating to be ready by the middle of August. We shall now be able to accommodate 27,000, which will enable us to look after

many more of our alumni, whose numbers are being swelled each year by record graduating classes. The new construction is being financed entirely by the Athletic Association, with the assistance of a loan from the Board of Governors, which it is expected we shall be able to pay off in approximately fifteen years.

The Athletic Directorate met nineteen times during the session and handled the administrative problems placed before the members with efficiency and despatch under the able chairmanship of Professor T. R. Loudon.

J. P. Loosemore

Report of the Director of Physical Education for Women

The aim of the Department of Physical Education for Women is not only to maintain and improve the health of the women students, but also to provide a broad experience in physical recreation. In addition, an important by-product of the work of this Department, which is frequently overlooked, is the fact that in their Physical Education classes students of all faculties and colleges mingle. This is especially important to first-year students, who are strangers to the University and strangers to each other.

As in former years the required programme consisted of one gymnastic class and one elective sport a week. During the year a total of 691 students attended classes. Of these, 49 were students of upper years who attended voluntarily. The demand for instruction by upper classmen greatly exceeded our ability to supply it, since in every class our facilities were taxed to the utmost.

With the addition of the use of the Drill Hall the sports of badminton and archery received fresh impetus. During the year over 250 students engaged in these two activities alone. Other students elected classes in basketball, bowling, fencing, figure skating, golf, tennis, volleyball, ballroom, or modern dancing, as well as swimming, diving, or life saving.

Swimming tests were conducted at the beginning of the year and students unable to pass these tests were required to take swimming as their second class. Some 73 students, therefore, were engaged in this beginners' group. In advanced swimming, 23 life saving awards were gained.

Immediately after registration, posture tests were conducted. As a result of these tests, 64 students required special work before proceeding into regular classes. The Department of Physical Education hereby acknowledges the assistance of Miss Pollard of the Physical Therapy Department in this important work.

Special events in the Department included an opening demonstration of the activities in elective classes at the College of Education, a swimming performance entitled "Dawn to Darkness" held in Hart House pool, and two "splash parties," open to all students. In addition 23 students from the Arts college joined with the students in the School of Physical and Health Education in the course for camp counsellors held in May.

Three staff changes occurred in September. Miss Kathleen Oswald of the Bedford College of Physical Education, England, and Miss Nancy Simpson, a graduate of Physical and Health Education, joined the teaching staff. Mrs. Elizabeth Scott became secretary of the Department.

Student interest in athletic activities is growing rapidly and students are coming to the University requiring more advanced work. The addition of a Women's Building could utilize this interest and skill very well for the benefit of the University as a whole.

Z. Slack

Report of the Secretary-Treasurer of the Women's Athletic Association

A successful athletic programme for women students was carried out during the past year in both the competitive and the recreational fields.

In intramural athletics, 800 students were registered in the team sports in addition to a very large number who participated in swimming, tennis, badminton, and bowling. Physical and Health Education teams once more won the intramural championships in softball, hockey, and volleyball, but it was a healthy sign to find two of the major awards going to other faculties. The basketball cup was won by St. Michael's College for the second time in its history and the swimming cup went to a combined team of Medicine, Nursing, and Physical Therapy. It is noteworthy that the calibre of the officials in the various intramural series is improving steadily, owing to the training being offered by staff members of the School of Physical and Health Education.

Intercollegiate athletics also enjoyed a most successful year, Toronto taking the two major titles in basketball and swimming, second place in tennis, volleyball, and badminton, and defeating Queen's in a home-and-home hockey series. The championships in basketball and swimming are all the more commendable when it is considered that the other universities now have their own large gymnasium floors and pools of regulation size, while Toronto teams have to train in a small gymnasium and in a very short pool.

The Athletic Directorate for the year 1949-50 consisted of: Mrs. M. M. Kirkwood, President, Dr. F. Quinlan, Miss Z. Slack, Dr. F. Stewart, and Miss A. E. M. Parkes, all staff members; and the Misses J. M. Cossar, R. A. Jeffries, R. Kelly, C. J. Matthews, D. P. Rogers, J. E. Somerville, and D. M. Stillwell, representing the undergraduates.

A. E. M. Parkes

Report of the Officer Commanding the University Naval Training Division

The changes made last year in organization have consolidated university naval training as an integral part of the naval defence system of Canada. The Royal Canadian Navy has come increasingly to regard the U.N.T.D. as a source of permanent force officers. In addition, the U.N.T.D. has been made responsible for the naval training of R.C.N. officers while they are in attendance at the University.

One hundred and sixteen cadets from the University of Toronto Division will be under required training before June 1, 1950. In the summer of 1949, cadets from this University served in H.M.C. Ships and Establishments in Halifax and Esquimalt. Cadets spent at least a month in one of the cadet training ships H.M.C.S. *Ontario, Iroquois, Antigonish,* and *Beaconhill,* and visited ports on both seaboards of North America.

In September, 1949 Lieutenant E. M. Gruetzner (University College, 1948) was appointed as Resident Staff Officer, U.N.T.D. This has contributed to a marked degree to the efficiency of administration and training.

The strength of the University of Toronto Division for June 30, 1950, is 15 officers, 15 R.C.N. officers borne for training, 133 cadets, 4 men. After graduation, 23 cadets will be promoted to sub-lieutenant.

R. F. McRae

Report of the Officer Commanding the University of Toronto Contingent, Canadian Officers Training Corps

Once again I should like to stress the invaluable aid given to the Contingent by all faculties and colleges of the University. Four members of the faculty served as Contingent officers and two representatives from each faculty served on the selection committees (Arts, Dr. K. S. Bernhardt, Dr. R. F. McRae; Medicine, Dr. J. R. F. Mills, Dr. K. J. R. Wightman; Applied Science, Professor C. F. Morrison, Dr. G. R. Lord; Dentistry, Dr. R. J. Godfrey, Dr. J. Kreutzer).

The qualification for Lieutenant (Reserve Force) has been changed to two practical and two theoretical phases and this has resulted in certain changes in the theoretical programme. Military Economics has been deleted from the syllabus of training and because of a re-organization of the syllabus Military Geography was not taken this year.

The results of the University of Toronto Contingent officer cadets at Corps School in the summer of 1949 were most gratifying. Over 300 officer cadets attended summer camp and less than 1 per cent failed.

The C.O.T.C. programme is beginning to produce qualified officers for the Canadian Army, both Active and Reserve Force. It should be noted that approximately 45 officer cadets from this Contingent are now commissioned officers in the Canadian Army Active Force and approximately 50 officer cadets are commissioned officers in the Reserve Force. Approximately 100 officer cadets are now commissioned officers in the Supplementary Reserve. Many of the latter are likely to join Reserve Force units.

Major H. W. F. Appleton, E.D. (B.A. University College, 1932), the first Resident Staff Officer of the Contingent, has been transferred to Army Headquarters. He has been succeeded by the former Assistant Resident Staff Officer, Major G. MacLean Logan (B.A. Mt. A., 1940). Captain F. J. Murphy (M.A. West., 1941) is the new Assistant Resident Staff Officer.

I would like to express my thanks to the Resident Staff Officers and in particular to Major Appleton whose work during the formative year of 1946-7 has been largely responsible for the success of the Contingent. To the Contingent officers and to the clerical staff also go my warmest personal thanks for their invaluable assistance.

I should also like to call attention to the need and the desirability of having members of the University staff serve as Contingent officers in the C.O.T.C. Continuity in the C.O.T.C. is best maintained if permanent members of the University staff rather than students at the University serve as officers.

W. L. Sagar

Report of the Officer Commanding the R.C.A.F. (Reserve) University of Toronto Flight

In 1949-50 the position of the R.C.A.F. University Flight on the campus was considerably consolidated. Formed in February, 1949 as a university detachment of 400 Squadron—a Toronto-based fighter squadron of the R.C.A.F. (Reserve)—the Flight was reorganized in October. Since then it has been established as a separate Reserve Training Unit, on strength of R.C.A.F. Station, Toronto, but with headquarters at the University.

The function of the University Flight is to foster interest in the R.C.A.F. and furnish a flow of trained university men into the Regular and Reserve Air Force as commissioned officers. Its establishment provides placement for approximately

150 undergraduates, largely but not exclusively drawn from courses in pure or applied science or medicine.

Undergraduates selected for enrolment in the University Flight are appointed to the officer rank of Flight Cadet. While serving as members of the Flight they are given "winter training" at the University, consisting largely of lectures during, normally, three successive academic years. Their three sessions of winter training are each immediately followed by a period of "summer training." In the case of those selected for aircrew, this training consists of spending three summers in qualifying to "Wings" standard as navigators, pilots, or radio officers. In the case of those selected for groundcrew, the summer months of three successive years are spent in training and employment at appropriate schools or other units of the R.C.A.F.

For from sixteen to twenty-two weeks in the "summer" of 1950, a total of 94 undergraduates of the University Flight have been posted for aircrew or groundcrew training to R.C.A.F. schools at Centralia, Clinton, London, Trenton, and Summerside, or to various other R.C.A.F. units throughout eastern Canada. This total compares with 62 for the preceding first summer of the Flight's existence, and will normally be materially exceeded in the session 1950-1, when, in conformity with planning on a three-year basis, the strength of the Flight is due to attain its establishment.

To the R.C.A.F. (Regular) Resident Staff Officer, Flight Lieutenant M. A. Everard, to the Flight's Second in Command, Flight Lieutenant R. H. Perry, to the commanding officers and staffs of R.C.A.F. Station, Toronto, the C.O.T.C., and the U.N.T.D., to the members of the Joint Services University Training Committee, and to many other members of the staff of the University, who have been of signal assistance to the University Flight in its difficult formative period, special thanks are due and are here gratefully recorded.

F. L. Hutchison

Report of the General Secretary-Treasurer of the Students' Administrative Council

The Students' Administrative Council can look back at the year just ended as one of the most successful and constructive years in its history. The activities of the Council continued to expand but this very expansion caused a serious problem in regard to rising costs. Publications were particularly affected. Early in the new term, the Finance Commission of the Council considered the Council's whole financial structure, and prepared a most comprehensive brief on the Council's finances. This brief was passed on to the President of the University and the Board of Governors, and, as a result of the Council's representations, the fee of the Students' Administrative Council was increased from $3 to $5 for three-year courses or over, from $4 to $6 for two-year courses and from $6 to $8 for one-year courses. This will allow the services of the Council, which have been built up since the war, to be continued in the general interests of the student body. A brief was also submitted on a Student Memorial Union, which was presented to the President and the Board of Governors.

While the most active committee of the Council during the year was the Finance Commission, the Publications Commission also had a successful year. Ninety-six regular editions of the *Varsity* were published during the year at a cost of $29,373.03; 7,000 copies of the *Students' Handbook* were printed at a cost of $2,918.41; and 2,500 volumes of the 1950 *Torontonensis* were published at a cost of $14,671.03.

The Council's Blue and White Society had the most active and successful season since its inauguration. Its members cooperated with the Alumni Association to put on a successful Homecoming Weekend for graduates in October, and provided hospitality on the campus for visiting students from other universities who came for the rugby weekends.

This year also marked the inauguration of the Student Book Exchange which was one of the activities of the Student Service Commission of the Council. In the six weeks of the Book Exchange's operations, slightly more than $6,000 worth of used texts were sold to the student body at a very low cost. The students disposing of the books set the price, supervised, of course, by the Commission. This Commission also sponsored the Feather Fair, one of the features in the University campaign for the Community Chest of Greater Toronto. The campaign for this charity was conducted through the Council office and approximately $11,000 was collected.

The Music Committee sponsored the Orchestra and Chorus and the Carnegie Record Collection. This valuable collection of records was moved to the new Mechanical Building and recitals were held each afternoon. The Orchestra and Chorus gave four concerts in Convocation Hall to the staff and student body of the University. These were well attended and greatly appreciated. Another activity of the Music Committee was the compilation and editing of a new University song book.

The Debating Union had an exceptionally good year. It arranged a tour of certain United States universities and also organized the regular intercollegiate debates. This committee was greatly helped by a contribution from the English-speaking Union.

The All Varsity Revue played for a week at Hart House Theatre and each performance was completely sold out. The revue this year was an even greater success than the previous year when it was produced for the first time.

The Council each year provides an entrance scholarship into the University. This scholarship has an annual value of $300 and is awarded by the Senate to a student residing in a certain defined portion of northern Ontario who plans to enrol in Medicine, Applied Science and Engineering, Forestry, Dentistry, in the four-year course leading to the degree of Bachelor of Science in Pharmacy, or in the School of Architecture. The scholarship may be tenable for two years providing the student acquires the necessary academic standing. Two students were awarded the scholarship during the past year.

The N.F.C.U.S. Committee of the Council put in a particularly constructive year, and student exchange, travel, text-book costs, and a student seminar project in Quebec were among the matters dealt with. In addition the Carabin week-ends, which have now become an established practice, were most successful. Certain selected students from the University of Toronto visited the University of Montreal in December and thirty-five French-Canadian students from the University of Montreal visited the University of Toronto in January. The visitors on both occasions were put up in the homes of their hosts and many firm and fast friendships were formed as a result of this activity.

The Blue and White Band, with a membership of 50 students drawn from every constituent part of the University, provided much of the colour at the intercollegiate games. The Council sent it to all the out-of-town games to give support to the first team.

Mention should be made of three very important services rendered to the student body by the Council, the Housing Service, the Employment Service, and the Loan Service. The Housing Service again had to cope with the acute housing shortage in the city of Toronto. In June a special office was opened and staffed in Hart House, and in September the Reading Room in Hart House was made available to inform the students of accommodation that had been obtained throughout

the summer months. It can be said that through this service all members of the staff and student body, both married and unmarried, who required accommodation were referred to it by the Housing Office. Again the Council could not have accomplished this task without the help of many interested individuals, service clubs, and organizations. In particular the various churches in the city, all the service clubs, and the I.O.D.E. were the most active. Free time was given on the air by the Canadian Broadcasting Corporation and station CKEY, and chain stores and banks offered valuable help by displaying the Council's posters in their places of business. Even with this help the cost of this service was in excess of $1,000.

Many ex-service students and other students, in view of the rising cost of living, found it necessary to supplement their finances by part-time employment. Working in close co-operation with the University Placement Service, the Employment Service arranged for Christmas, part-time, and summer employment for male students through an office on the second floor of Hart House, and for women students in the women's Council office in University College. Again the Council was fortunate in receiving the whole-hearted co-operation of the National Employment Service. An officer of this government department was present in the Council Employment Office from September until June. This valuable contact made it possible for us to refer job opportunities in the home districts to students living in other parts of the country.

Perhaps the next most pressing need from the point of view of ex-service students was money to meet emergencies arising throughout the term. Under the authority of the President of the University, the Ex-Service Student Emergency Loan Fund was again operated by the Council. No student who required immediate cash to meet an emergency having any bearing on his university course was refused assistance. For non-service students the University Undergraduate Loan Fund, operated by the Council, provided invaluable help, and here again everyone whose cause was a legitimate one received help.

Once again the Lord Eglinton Chapter of the Imperial Order of the Daughters of the Empire provided financial assistance to two students selected through the Council office without which aid these particular students could not have continued at the University. To this Chapter the Council wishes to record its most grateful thanks.

The President of the Council was Mr. R. F. Hetherington, President of the Medical Society and a winner of a Rhodes Scholarship for 1950. Mr. Carman Guild was Chairman of the Council, and the President's representatives on the Council during the year were Professors Knox and Shore. Dr. Pounder, who had served the Council faithfully for a number of years as the President's representative, retired from the Council at the start of the term. He was presented with the Council's Honour Award, given to certain students on their graduation in recognition of their contribution to undergraduate life of the University.

E. A. Macdonald

Report of the Manager and of the Editor of the University of Toronto Press

In the current year the Press has published eighteen books, one reprint, two pamphlets, and twenty-three issues of its journals. The new books are as follows:

Lanczos, C., *The Variational Principles of Mechanics.*
Synge, J. L. and Schild, A., *Tensor Calculus.*
MacGillivray, J. R., *Keats: A Bibliography and Reference Guide.*
Blatz, *et al.*, *Outlines for Parent Education Groups: Discipline.*
Bayley, C. C., *The German College of Electors in the Mid-Thirteenth Century.*
Dawson, R. M., *Democratic Government in Canada.*

Cleverdon, C. L., *The Woman Suffrage Movement in Canada.*
Fox, H. G., *The Law of Master and Servant.*
Tovell, R. M., *Flemish Artists of the Valois Courts.*
Cook, A. L., *The Sonnets of Louise Labé.*
Low, A. R., *Normal Elliptic Functions.*
Morton, W. L., *The Progressive Party in Canada.*
Buller, A. H. R., *Researches on Fungi,* volume VII.
Robb, H. M., *Practical Periodontia.*
Masters, D. C., *The Winnipeg General Strike.*
Roberts, M., *Tess in the Theatre.*
Graham, G. S., *Empire of the North Atlantic.*
DeLury, D. B., *Values and Integrals of Orthogonal Polynomials up to n-26.*

Democratic Government in Canada was awarded the Governor-General's Medal for academic non-fiction for 1949. This is the second time that this medal has been awarded to Professor R. MacGregor Dawson, his *The Government of Canada,* also published by the Press, having been honoured in 1947.

Ruth Massey Tovell's *Flemish Artists of the Valois Courts* is in many respects a publishing "first" for Canada. It is unusual to find a book of this type written by a Canadian author, and the format of the book is also unusually elaborate for this country. Eleven reproductions in full colour of medieval manuscripts are included, and forty-nine half-tone reproductions. The format is distinguished, and the book, we believe, a credit to Canadian publishing in every way.

Another publication of a special type is volume VII of *Researches on Fungi,* by the late A. H. R. Buller. This book was published in co-operation with the Royal Society of Canada. Previous volumes by Professor Buller were published in England, and the Press is proud to have produced a book which compares favourably with these earlier volumes in reproduction of technical illustrations.

In this connection, it may be noted that a collection of our recently published books was placed on display at the meetings of the learned societies held at the Royal Military College, Kingston, this spring. The attendance at the various meetings numbered several hundreds and included representatives from all the universities in Canada and from government departments and various academic organizations. Many favourable comments were received upon the extent and variety of the publishing programme of the Press, and the quality of its production.

In the current year, the Publications Fund, set aside in the budget of the Press to underwrite scholarly books which cannot carry themselves, was entirely appropriated. It should also be mentioned that a great deal of publishing is being done in co-operation with learned societies and public agencies of various kinds, who find these joint arrangements useful not only because of the Press's editorial services but because it has a specific fund available for the support of meritorious works which could not be published on a strictly commercial basis. The Press has also entered into co-operative arrangements with several American publishers and one Canadian publisher to share production costs on certain new publications. These co-operative ventures enable the Press to spread its support over a much wider field.

A Pamphlet Series, dealing with subjects of contemporary though not ephemeral interest, has been established. Eight pamphlets already published have been included and a ninth is at present in hand. It is intended to include in this series not only items published wholly by the Press, but also some which are supported financially by foundations or sponsors. This series will provide a medium for valuable material which does not fit into the programmes of the journals, and is not of sufficient length for book publication.

On April 20, a brief on "The Problem of Scholarly Publication in Canada" was presented by request by Professor G. W. Brown, the Editor of the Press, at the public hearing of the Royal Commission on National Development in the Arts, Letters and Sciences. It was clear from the questions which were asked that

the members of the Commission had read the brief with interest and that they would give serious attention to its contents in considering the matter of support for scholarship and research, which has an important place on their agenda.

A new and improved inventory record for the University Press has been set up which will effect closer control of stock. A major survey of existing inventories was carried out. Members of the faculty were consulted and with their co-operation obsolete stocks were identified and subsequently sold.

The Printing Department sales reached a new peak in the history of the Press. While higher labour and material costs were a factor, there was an increase in the volume of work handled.

Various additions and improvements were made to the Printing Plant. A new mailing division was set up, addressing equipment being taken over from the Registrar. The Multilith Department was expanded by the addition of a press taken over from the Connaught Laboratories and the acquisition of a new Varityper. Varitype composition and multilith reproduction enable much University printing heretofore set in metal type to be produced at less expense. Plant improvements included the installation of a fire escape and the partitioning of the third floor to provide for the Multilith, Addressing and Proof-reading Departments.

The Bindery was completely reorganized. Working conditions were improved by the installation of new lighting fixtures throughout. The system of work-flow was improved and supervision was increased. The consequent increase in efficiency and output was readily reflected in lower unit costs for this department.

Under terms of union contracts negotiated for a two-year period, wages increased ten cents per hour effective October, 1949, and will be increased an additional five cents per hour effective October, 1950. The new contracts also provided for a second week's annual vacation with pay.

At Chapel Hill in North Carolina in May, the Manager, on behalf of the President, invited the American Association of University Presses to convene their next annual meeting in Toronto. The invitation has now been accepted and in June, 1951, at the University of Toronto, this Association will meet for the first time in Canada.

In 1951 the University of Toronto Press will complete its fiftieth year of service. Plans are under consideration to commemorate suitably this anniversary.

A. G. Rankin
G. W. Brown

RESEARCH

Faculty of Arts

ANTHROPOLOGY

Reported by Professor T. F. McIlwraith

Professor G. G. Brown has continued work on community research in West Toronto, including the preparation of technical reports. In this work he has been assisted by both graduate and undergraduate students.

Mr. E. S. Carpenter has completed a long-term research project, supported by a grant from the Lilly Foundation of Indianapolis, regarding the historical value of oral traditions.

Mr. J. N. Emerson has directed a week-end student excavation, and has been working extensively on the preparation for publication of results of archaeological work.

Professor T. F. McIlwraith has spent considerable time on problems of Museum rearrangement and reclassification, problems which are in part administrative and in part research.

ART AND ARCHAEOLOGY

Reported by Professor P. Brieger

Most of the studies by members of the staff which were mentioned in last year's report have been continued. Professor C. F. Comfort has completed a special study on the visual arts in Canada in relation to Canadian culture. He also had two public showings of his paintings covering the period 1925-50. Professor G. S. Vickers spent three months in France collecting material for a series of studies on late Romanesque sculpture in France. Mr. J. A. Baird was engaged in research on the relations between Mexico and Spain in the eighteenth century. Mr. F. Winter spent the year as a Fellow of the American School of Archaeology at Athens in order to complete his study on Greek fortifications.

ASTRONOMY

Reported by Professor F. S. Hogg

The regular programme of radial velocities of the later type stars, brighter than 9.0 photographic magnitude, in the Yale Zone 25 to 30 degrees, has been continued under the supervision of Professor Hogg and Miss Northcott. The results for about two hundred of these stars, so far completed, are being sent to Mount Wilson for inclusion in the Carnegie Institution's new reference catalogue. Professor Heard has completed the velocity determinations for twenty-one stars of spectral type Be.

Professor Williamson has examined the hypothesis of free-free transitions in interstellar space as the source of galactic radio-noise, and concluded that present observational measures of galactic half-width are strong evidence against this hypothesis. With Professor Charles Seeger, of Cornell University, he has completed a major observational research on the determination of the distribution of the galactic radio noise. This work was undertaken under the auspices of the United States Navy Microwave Astronomy Project, using the Cornell radio-telescope.

Mrs. Hogg has completed a study of the variable stars in the globular cluster NGC 6333. She has paid particular attention to the application of the statistical criterion for spurious periods, as recently developed here by R. W. Tanner for spectroscopic binaries. Mr. R. L. Baglow is using the photomultiplier stellar photo-

meter on the 19-inch telescope for accurate two-colour photometry of eclipsing binaries.

Collection of meteoritic dust samples from Baker Lake and Resolute Bay was carried on during the winter, through the co-operation of the Meteorological Service of Canada and the Dominion Observatory at Ottawa.

The Computation Centre of the University has completed extensive sample navigation tables based on Professor Heard's new short method of precomputed triangles. Under the auspices of the Defence Research Board, working copies are being prepared for service testing in the air.

Three graduate students have carried on research projects this year. In collaboration with Professor Heard, Mr. Ian Halliday has made a study of the variable spectrum of the star H.D. 218393. This is a complex star on which Professor Heard had been securing observational data over several years. Under the direction of Professor Williamson, Mr. J. B. Oke completed an astrophysical discussion of "A theoretical Hertzsprung-Russell diagram for red dwarf stars." In this he assesses the modes of energy generation for various models of the cooler, less massive stars. Under the supervision of Professor Hogg a third graduate student, Mr. W. R. Hossack, has made considerable progress in designing and constructing a new type of semi-automatic measuring engine for the determination of radial velocities of the stars.

BOTANY

Reported by Professor H. S. Jackson

Professor D. L. Bailey has continued his investigation of the origin and constancy of parasitically specialized races of the fungi with particular reference to *Cladosporium fulvum,* the fungus which causes the leaf mould disease of tomatoes.

Under Professor Bailey's direction Mr. R. H. Stover continued his study of the black root disease of tobacco for the third year. Mr. B. H. MacNeill continued his study of *Septoria lycopersici* on tomato. Mr. R. N. Wensley has begun a study of some of the microbiological effects of some of the recently evolved chemical soil fumigants.

Professor G. H. Duff has continued research work as follows: (1) The metabolism of growth. During 1949-50 the work centred on a study of metabolism in tissue cultures growing under "elementary" conditions of nutrition. (2) The developmental physiology of the red pine. This is a field and laboratory study, with the practical object of improving the meagre yield of seed by this species. Professors G. H. Duff and D. F. Forward have continued joint studies on the metabolism in chlorophyllous plant tissues. They are part of a series of studies in the metabolism of leaf tissue produced under standard, artificial conditions of growth. Professor D. F. Forward has continued investigations on the role of oxygen in plant metabolism, a physiological and biochemical study of the metabolic pathways of carbon under varying oxygen supplies.

Under the direction of Professors Duff and Forward, Mr. V. C. J. Quesnel has completed a study on the effect of enzyme poisons upon respiration and growth in plant tissue cultures.

Professor H. B. Sifton continued his studies on developmental plant morphology and on germinating seeds and their response to environmental factors.

Under Professor Sifton's direction, Mr. B. F. Forward completed a study of investigations of the germination of oats and Mr. M. Weintraub on the motor mechanism in *Mimosa pucica.* Mr. H. M. Dale continued his work on developmental studies of *Anacharis canadensis.*

Professor H. S. Jackson and Miss E. Ruth Dearden have continued studies of the fungus family Thelephoraceae. Three papers have been completed and published during 1949-50 and progress was made on five other manuscripts. Dr. R. F.

Cain has made a study of the morphology and taxonomy of various species of Ascomycetes in culture and has continued his study of coprophilous Ascomycetes and of the Hydnaceae of British Columbia. Exploration of the cryptogamic flora of the Manitoulin district was conducted.

Three graduate students specializing in forest pathology have completed theses during the years as follows: Mr. R. E. Foster, "The decays and decay relationships of western hemlock, *Tsuga heterophylla* (Raf.) Sarg., on the Queen Charlotte Islands, B.C."; Mr. L. T. White, "Decay losses in white pine in Ontario"; Mr. J. T. Basham, "An investigation into the decay of balsam fir in Ontario."

Professor J. G. Wright has continued work on the inheritance of form and colour in the flower of *Linaria vulgaris*.

Professor M. W. Bannan has been studying the anatomy of *Cupressus* and *Chamaecyparis* and has published material on some aspects of the wood structure and behaviour of the cambial cells in the latter genus. A graduate student, Miss Barbara Whalley, has completed and published a study dealing with the frequency of anticlinal divisions during increase in girth of the stem of *Thuja*.

Professor D. H. Hamly has continued his physical biological researches. These have been concerned with (*a*) the evaluation of the organic and inorganic compounds in plants *in situ* and the making of records of them in colour; (*b*) studies in light absorption and fluorescence; (*c*) interpretation of colour in plant tissues by means of standards; (*d*) work on a system of international colour descriptions.

Professor J. H. Soper has continued work on a project dealing with phytogeographic studies in southern Ontario. A graduate student is undertaking a study of the cyto-taxonomy and geographic distribution of the species of *Actaea* (baneberry).

Dr. K. H. Rothfels continued his cytological investigations of certain grasshopper species and started a cytogenetical study of bacteria. One paper is presently in the press, and several others are being prepared for publication. Studies in cell physiology involving the use of mitotic poisons were initiated. This work is being carried out by Dr. R. B. Doughty, who completed within the year his cytological investigations of the genus *Hordeum*.

The herbarium of Vascular Plants, under the curatorship of Professor J. H. Soper, has been enlarged by the addition of 2,623 sheets, bringing the total to 67,806. The herbarium of Fungi, inclusive of Myxomycetes and Lichens, under the curatorship of Dr. R. F. Cain, has been increased by 1,373 specimens, bringing the total to 89,284. The collection of Bryophytes has been increased by 1,100 specimens, bringing the total to 20,239. Other scientific collections are approximately as reported previously.

CHEMISTRY

Reported by Professor A. R. Gordon

The research work carried out by members of the teaching staff of this Department, during the session 1949-50, was as follows:

Beamish, F. E., Rare metals.
Gordon, A. R., Theory of solutions.
LeRoy, D. J., Kinetics of homogeneous gas reactions.
Lister, M. W., Magnetic susceptibility.
McBryde, W. A. E., Rare earths.
McCasland, G. E., Chemistry of aminocyclohexanols and inosamines.
McIntosh, R. L., Physical chemistry of surfaces.
Rae, J. J., Chemical mechanisms involved in dental caries.
Wetmore, F. E. W., Properties of molten electrolytes.
Wright, G. F., Organo-metallic compounds. Stereochemistry. X-ray studies of molecular structure.

Fifty-six students were engaged in research work during the session under the direction of members of the staff.

The following were the subjects of research:

Ackman, R. G., Condensation of furan with ketones.
Allan, W. J., The determination of osmium and its distribution during the fire assay.
Allentoff, N., Zeisel analysis of coniferyl alcohol.
Amberg, C. A., The swelling of porous glass rods on adsorption of water vapour.
Barefoot, R. R., A new method for the determination of iridium and its separation from lead.
Berlie, M. R., Reactions of atomic hydrogen.
Binnie, A. W., Structure of alkyl derivatives of Traube acid by X-ray diffraction.
Blackmore, A. P., A critical examination of methods for the determination of platinum.
Brandy, J. H., The gas phase photochlorination of methyl chloroformate.
Brook, A. G., Mechanism of oxymercuration.
Brown, W. H., Reactions of furan.
Bryce, J. R. G., Pyrimidinealkanols.
Butler, J. P., Conductance of alkali halides in methanol.
Butters, R. G., The structure of isonitramines.
Cluett, M. L., Separation of platinum metals by ion exchange.
Cohen, H. L., Addition of sodium to stilbenes.
Cooke, W. E., The photochlorination of dichloromethyl chloroformate in carbon tetrachloride solution.
Craig, A. W., An attempt to prepare small sodium chloride particles.
Cvetanovic, R., Kinetics of the reaction of atomic sodium with ethyl chloride.
Davies, J. A. P., Transference numbers of alkali halides in methanol and in methanol-water mixtures.
Fraser, G. T., The chlorination of platinum.
Graham, N. A., Separation of rhodium and iridium by controlled cathode electrolysis.
Greenspan, H., Dielectric constant of water adsorbed on silica from 100 kc. to 4,000 kc.
Hadgraft, R. B., Sulfamic acids, deamination.
Hall, R. H., Action of acetyl chloride on nitramino imidazolidines.
Hazell, D. N., An attempt to prepare small sodium chloride particles.
Hoey, G. R., The mercury ($^3P_1$) photo-sensitized hydrogenation of propylene.
Hoffman, P., Preparation and reactions of unsaturated nitriles.
Hollander, M. M., Aminocyclandiols and diaminocyclanols.
Horswill, E. C., Heterocyclic derivatives of aminocyclanols.
Hughes, A. A., Lower valency complex cyanides of transition elements.
Jervis, R. E., Conductance of alkali halides in methanol.
Kasman, S., Synthesis of trimethylcyclohexanone.
Kay, R. L., Transference numbers for alkali halides in methanol.
Kenzie, W. R., The preparation and properties of organic fluorides.
Kingdon, W. R., Structure of dinitropiperazine by X-ray diffraction.
MacDonald, J. J., An exact test of the Ilkovic equation.
MacKenzie, D. R., The polymerization of ethylene by ethyl and vinyl radicals.
Marks, M. A., The determination of platinum by precipitation by formate and zinc.
Matchett, T. J., Dihydroxycyclohexylamine.
Meen, R. H., Mechanism of amine nitration.
Mitchell, A. G., The mercury ($^3P_1$) photosensitized decomposition of ethylene.
Morley, H. B., Mechanisms of electrode processes.
Newcombe, A. G., Mesyl derivatives of hydrazine and polyalcohols.
Newcombe, H., Colorimetric determination of micro amounts of germanium by hematoxlin.
Piper, D. E., Studies on insect repellency.
Pugsley, F. A., Viscosity of molten salts.
Rodgman, A., Tautomerism in N,N'-diacetylmethylimidazolidine.
Sefton, V. B., Application of radioactive tracers to chemical kinetics.
Smith, D. A., Aminocyclopentanols.
Smith, J. G., Synthesis of tetrahydroxyanthraquinones.
Snelgrove, J. A., Dielectric constant of water adsorbed on silica at low radio frequencies.
Stancer, H., Construction of a wide-range pressure gauge for condensible vapours.
Teeter, K. G., Distribution of palladium in the fire assay.
Torrie, K. M., Innovations in micro carbon-hydrogen analyses.
Viola, A. L., Dielectric constant of mixtures.

CLASSICS, UNIVERSITY COLLEGE

Reported by Professor G. Norwood

Bagnani, G., Sources of Roman history. Petronius.
Dale, E. A., Plautus and Greek new comedy.
Getty, R. J., Valerius Flaccus.
Heichelheim, F. M., Economic history of ancient Europe.
Norwood, G., Euripidean dramaturgy.
Shepherd, R., A Greek oracle in lyric metre.
Tait, M. D. C., Plato's psychology. Aristotle, *Ethics.*
Thomson, D. F. S., Catullus.
Wallace, W. P., Eubocan coins.
Woodbury, L. E., Textual problems in the Greek lyric poets. Greek notions of laughter.

EAST ASIATIC STUDIES

Reported by Professor L. C. Walmsley

Miss Helen Fernald has carried out research on the iconography of the Buddhist fresco painting in the Royal Ontario Museum of Archaeology, which has yielded additional information as to interpretations of the side scenes at different periods. Dr. Shih has done research for a revision of his Ph.D. thesis "International law in the Ch'un Ch'iu period," to be published shortly. He has also done research on early Chinese religion as evidenced by the oracle bones.

Research has also been carried on by graduate students. Mrs. Edgar Stone has unearthed new and important material on the introduction of the chair into China. Miss Margaret Ruttiman has brought together and analysed old and new material on the religion of the Shang Dynasty, making extensive use of the East Asiatic Collections in the Royal Ontario Museum of Archaeology. Mr. Finlay MacKenzie has worked on the early history of the development of agriculture in China.

ENGLISH, UNIVERSITY COLLEGE

Reported by Professor A. S. P. Woodhouse

Professor J. R. MacGillivray has completed his research on the reputation of Keats by the publication of his bibliography and introductory essay (reported under publications), and has resumed his research on Wordsworth. Professor F. E. L. Priestley has spent the year in England, as the first Canadian Nuffield Fellow in the humanities. The subject of his research, the influence of Newton and Locke on English thought to 1830, is connected with the project on the history of Romanticism in which he is collaborating with Professor Woodhouse. Professor H. S. Wilson has spent the year as Senior Research Fellow at the Huntington Library, working on a study of Shakespeare's later comedies. Professor C. T. Bissell has pursued his study of Canadian fiction, and of the literature of thought and opinion in Canada (the subject of a paper at the Regional Conference of the Humanities Research Council in June). Professor C. W. Dunn has continued his research in English culture in the twelfth century; Professor Douglas Grant has continued his investigations in Addison; and Mr. E. Rhodes, his preparation of an edition of William Walsh. Professor A. S. P. Woodhouse has prepared a second edition of his *Puritanism and Liberty,* has continued his study of Milton (the subject of a course of lectures delivered at the invitation of the University of London in April and May), and has continued his investigations in the history of Romanticism (the subject of a paper to be delivered before the International Conference of Professors of English at Oxford in August). The research of instructors and teaching fellows who are registered for degrees is reported elsewhere; but mention may be made here of the completion of his research on the historical imagination in Spenser and Milton by Mr. W. F. Blissett, and of his in the religious and political thought of Fulke Greville by Mr. H. N. Maclean, both Lecturers in University College.

ENGLISH, VICTORIA COLLEGE

Reported by Professor J. D. Robins

Professor K. H. Coburn is continuing her work on the S. T. Coleridge unpublished notebooks. Professor J. Fisher, having completed his present research on A. E. Housman, is now preparing his findings for publication. Professor H. N. Frye has been doing research in the relation of epic form to symbolism in Spenser's *Faerie Queene*. Professor K. MacLean has been continuing his studies in John Locke.

ENGLISH, SCHOOL OF GRADUATE STUDIES

Reported by Professor N. J. Endicott

The following dissertations have been completed under the supervision of members of the Graduate Department of English.

Blissett, W. F. The historical imagination in the English Renaissance studied in Spenser and Milton.

Hillman, Miss M. E. Reluctant pilgrims: A study of the reports on England by American writers who visited Great Britain between 1806 and 1886.

Love, C. C. The scriptural Latin plays of the Renaissance and Milton's Cambridge Manuscript.

Birch, Miss R. M. The principle of decorum in the sixteenth century.

Bolgan, Miss A. C. The technique of epic characterization in Spenser and Milton.

Dawson, R. M. The patterns in the poems of the Exeter Book.

Gorman, P. The attitude to nature and the external world of Gerard Manley Hopkins.

Gummow, J. A. Blake's conception of illustration.

Kee, K. O. The treatment of nature in the Exeter Book.

Mallinson, Mrs. A. J. Conviction, rhetoric, and paradox in the divine poems of John Donne.

Parent, Miss M. The influence of the classical epic on Barbour's *Bruce*.

Proust, G. E. The satire of Aldous Huxley.

Steel, Miss A. Chapman's moral interpretation of the *Iliad*: An introductory consideration.

Stevenson, Miss E. The influence of Sir Walter Scott on John Buchan.

Stingle, E. M. Art and socialism in William Morris.

Thibodeau, Miss C. Recent Canadian poetry.

Whatton, M. V. The fragment of autobiography of Jonathan Swift: An edition with notes and appendices.

FRENCH, UNIVERSITY COLLEGE

Reported by Professor F. C. A. Jeanneret

Professor J. G. Andison and Professor H. L. Humphreys are continuing their preparation of a bibliography of French syntax since 1906. Professor R. D. C. Finch is completing his research on the relations of poetry and music in the eighteenth century. Dr. D. M. Hayne is completing the compilation of a critical bibliography of the French-Canadian novel from its origins (*c.* 1837) to the present. Professor F. C. A. Jeanneret is engaged in a critical study of the novels of C. F. Ramuz. Professor E. Joliat is conducting research on the literary and other relations between Hugo and Sainte-Beuve, and on Saint-Evremond. Professor C. D. Rouillard is engaged in research on oriental influences on French thought and literature.

FRENCH, VICTORIA COLLEGE

Reported by Professor W. H. Trethewey

Cook, Miss A. L. Literary women of the sixteenth century in France.

de Montmollin, D. Recherches sur la composition du texte de la Poétique aristotélienne.

Hare, F. A. The style of Barrès.

Laidlaw, G. N. Montesquieu's *Esprit des lois*, a new translation. Diderot and Montesquieu: The study of a relationship. Diderot on crime and punishment.

Ross, A. C. Camille Roy as literary critic.

Trethewey, W. H. The Trinity College, Cambridge French text of the *Ancrene Riwle*, an edition for the Early English Texts Society.

Wood, J. S. Sondages dans le roman français du dix-neuvième siècle du point de vue social. Part I: 1800-1830.

GEOGRAPHY

Reported by Professor G. Taylor

The staff have been engaged in the following research projects:

Bird, J. B. Physiography of the North West Territories.

Kerr, D. P. Climatology of British Columbia.

Putnam, D. F. Physiography of southern Ontario.

Spelt, Jacob. Geography of the tropics.

Tatham, G. Economic geography of Great Britain, based on material collected during the past summer's visit to England.

Taylor, Griffith. "Geography in the 20th century" edited for Methuens.

Wonders, W. C. Climatology of the Canadian Arctic.

Graduate work has been undertaken as follows:

Byrnes, T. Geographic factors in the Canadian automobile industry.

Dean, W. G. Physiographic regions of the Barren Lands.

Harbron, J. The iron and steel industry of Canada.

Hills, G. A. Geographic study of northern Ontario.

Hume, J. I. Geographic study of the south shore of Lake Simcoe.

Kling, S. Study of King, Markham, Vaughan, and Whitchurch Townships.

Shindman, B. The petroleum industry of Ontario.

Smythe, J. M. Comparative study of the contributions of E. Huntington and I. Bowman.

Wolfe, R. I. Geographic influences on the distribution of summer cottages in Ontario.

GEOLOGICAL SCIENCES

Reported by Professor G. B. Langford

Research activities of the staff are as follows:

Fritz, M. A. Study of the bryozoon genus Trachytoechus in the Helderberg Group at Schoharie, New York.

Langford, G. B. Continuation of the shore erosion studies of the Great Lakes for the Ontario Department of Planning and Development.

MacLean, A. Continuation of studies of the geology of the east Kirkland Lake area for the Ontario Department of Mines.

Nuffield, E. W. In collaboration with I. H. Milne, investigations on radioactive compounds have been continued. These include an intensive study of vandenbrandeite, $CuUO_4.2H_2O$, and shorter studies of other species. New data on the anhydrous oxides of uranium have been obtained from pure samples.

Peacock, M. A. A study of the mineral hauchecornite, $Ni_9(Bi,Sb)_2S_8$, has been completed. With J. McAndrew, the identity of shandite with the artificial compound $Ni_3Pb_2S_2$ has been proved, and the crystal structure of this compound has been determined. With R. M. Thompson, work is in progress on the rare mineral stützite, $Ag_{2-x}Te$. Work on the revision of crystal structure data on the ore minerals has continued.

Russell, L. S. Systematic study of fossil mammals from the Tertiary of Saskatchewan and the Lower Eocene of Wyoming. Identification of fossil mollusks from western Canada.

Smith, F. G. Determination of general direction of flow of gold-bearing solutions in the McIntyre and Lamaque mines, and detailed direction of flow in one vein. Decrepitation study of gold ore from the Canadian Shield and preparation of temperature contour map. Temperature-pressure study of Mississippi Valley lead-zinc deposits. Synthesis of minerals for control of decrepitation geothermometer.

Research completed by graduate students is as shown:

Boyle, R. W. Study of faulting and mineralization of the Yellowknife gold belt, N.W.T.

Bradshaw, B. A. Occurrence and origin of radioactive minerals.

Brown, R. A. C. Upper Palaeozoic stratigraphy and palaeontology in the Mount Greenock area, Alberta.

Carlson, H. D. Intrusive rocks of the Timagami district, Ontario.

Couture, F. T. Porphyries and porphyritization in Osway Township, Ontario.
Currie, J. B. Occurrence and relationships of some mica and apatite deposits in south-eastern Ontario.
Earley, J. W. Description and synthesis of the selenide minerals.
Erb, D. K. Pleistocene geology of Eldon Township, Victoria County, Ontario.
Graham, A. R. Synthesis and X-ray study of compounds in the systems Pb-Bi-S, Ag-Bi-S, and $Ag(Bi,Sb)S_2$.
Gray, A. B. Sedimentary facies of the Don formation.
Gross, W. H. An investigation of the control of gold mineralization in north-western Ontario.
Henderson, E. P. Tills in southern Ontario.
Hoadley, J. W. Geology of the Zeballos area, B.C.
James, M. J. Glacial geology of the Keewatin area, N.W.T.
Lawton, K. D. Petrology of the Round Lake batholith and its contact phases.
Parks, Thomas. Reservoirs in the Big Lime, Ontario.
Rode, E. R. Significance of accessory minerals in metamorphic rocks.
Wagner, F. J. E. Stratigraphy, palaeontology, and structure involved in a section in the Ottawa limestone.
Weber, W. W. L. Granodiorites and associated ore deposits in Duverny Township, Quebec.

GERMAN, UNIVERSITY COLLEGE

Reported by Professor B. Fairley

Work upon which the staff is engaged:

Boeschenstein, H. Literary sensibilities in German literature of the eighteenth and nineteenth centuries.
Fairley, B. A short study of Goethe's *Faust*. An edition of selected letters of Goethe, 1788-1832. An anthology of Goethe's short poems.
Milnes, H. N. Humour in early Germanic literature. The German dialects of Waterloo County, Ontario.
Sinden, M. A study of Gerhart Hauptmann.

Work completed by graduate students:

Kahn, R. L. Social and political problems in the plays of August von Kotzebue.
Braun, W. The disintegration of the Austro-Hungarian monarchy as reflected in the German novel.
Crichton, M. C. Problems in the work of Ina Seidel.

HISTORY

Reported by Professor Chester Martin

Seven books are in active preparation by various members of the staff. Three or four of these already listed will be approaching conclusion next year.

Creighton, D. G. A biography of Sir John A. Macdonald.
Flenley, R. The history of modern Germany.
McDougall, D. J. Constitutional development in Great Britain and the Empire in the reign of George III.
McInnis, E. The emergence of the post-war settlement, 1945-50.
Martin, C. Foundations of Canadian nationhood.
Wilkinson, B. Completion of volume II of his series in constitutional history and beginning of volume III: II, Politics and the constitution, 1307-99; III, Constitutional evolution, 1216-1344.

Professor Wilkinson has had leave of absence for the second term of the session 1949-50 in order to continue his research, and Professor Flenley will have leave of absence for the same purpose during the whole of the session 1950-1.

The research by graduate students under the direction of the staff has included ten theses for the Ph.D. degree and twenty-three theses for the M.A. Of these, the following were completed for the Ph.D. and for the M.A. this year.

Under the direction of Professor Martin

Bargar, B. D. The administration of Lord Dartmouth in the American Department 1772-5.

Lockhart, A. D. The administration and development of Ontario under Sir James Whitney.
Zaslow, M. The development of the Mackenzie basin, 1920-49.

Under the direction of Professor Underhill

McKay, W. A. History of the R.C.A.M.C. in North-West Europe, 1944-5.
McNaught, K. W. K. James Shaver Woodsworth, from social gospel to social democracy (1874-1921).
Stuart, W. S. Canadian opinion of the United States between 1837 and 1867.

Under the direction of Professor Wilkinson

McCormack, J. R. The social consequences of the dissolution of the monasteries in England.
Oleson, T. J. The Witanagemot in the reign of Edward the Confessor.

Under the direction of Professor Creighton

Beattie, R. N. The Grand Trunk Railway before Confederation.
French, G. S. Methodism in Canada, 1790-1924.

ITALIAN, SPANISH, AND PORTUGUESE

Reported by Professor E. Goggio

Cano, J. El ritmo del octosílabo castellano. Estudio crítico de las diferentes teorías que han tratado de resolver este problema.
Corrigan, B. M. Research continued on unpublished manuscripts related to Browning's *Ring and the Book.*
De Chasca, E. Critical edition of the works of Lope de Rueda. Edition of Pedro Antonio de Alarcón's *El sombrero de tres picos.*
Goggio, E. The originality of the *commedie erudite* of the sixteenth century. Cultural relations between Italy, the United States, and Canada. Cervantes and Dante.
Goggio, E., Parker, J. H., and Corrigan, B. M. Bibliography of Canadian literary and historical journals in English or French published throughout Canada from the earliest times to 1900.
Leo, U. The unfinished *Convivio* and Dante's rereading of the *Æneid. Doña Perfecta y Doña Bárbara*: Un caso de ramificación literaria. Phenomenological and experimental styles in the French enlightenment. Preparation for publication of *Torquato Tasso: Studien zur Vorgeschichte des Secentismo.* Preparation of the English translation of his own work, *Der Dichter Alfieri.*
Parker, J. H. Completion of a study of the versification of the plays of Juan Pérez de Montalván. Preparation of a bibliography of the *comedias sueltas* of Calderón de la Barca to be found in the University of Toronto Library, for Professor Ada M. Coe, Wellesley College; 14 items have been listed which Miss Coe could not find elsewhere.
Patterson, G. C. Early Spanish literature. Phonology and morphology.
Taylor, N. H. A Study of Liberalism in the novels of Fernán Caballero.

MATHEMATICS

Reported by Professor S. Beatty

Professor Beatty, in collaboration with Mr. N. D. Lane, has applied minimal considerations to obtain a proof of the Riemann-Roch theorem involving properties of rational functions at individual points.

Professor Coxeter has obtained co-ordinates for certain regular hyperbolic tessellations and honeycombs. He also found a simple way to express all the known extreme definite quadratic forms in less than nine variables, and, in collaboration with Mr. L. Levine, he considered possible extensions of these results to indefinite forms. He worked with Mr. G. Berman on configurations inscribed in an elliptic cubic curve. He enumerated the groups in hyperbolic space which are generated by reflections in the faces of a tetrahedron, and, in collaboration with Dr. G. J. Whitrow of London, he applied this result to relativistic cosmology.

Professor Stevenson worked with Professor F. R. Britton on the theory of the effect of high pressure on spectral lines, an investigation suggested by experimental results obtained by Professors Crawford and Welsh and their students in Physics.

He worked with Mr. W. V. Tilston on the theory of antennas. Under his direction Mr. J. F. Hart has begun an investigation of the effect of spin terms in the theory of atomic spectra. At the same time he has been continuing his own special work on the theory of electromagnetic horns.

Professor Infeld worked with Einstein on a new formulation of the problem of motion, with Mr. A. E. Scheidegger on the problem of the co-ordinate system and radiation, with Mr. J. M. Kennedy and Professor Preston on quantum electrodynamics, and with Mr. T. E. Hull in preparing for publication their results on the factorization method.

Professor G. de B. Robinson, in collaboration with Mr. J. H. Chung, has obtained new results on the modular representation theory of the Symmetric Group. A whole new field has been opened up for future work.

Dr. Tutte has continued his work on the properties of linear graphs and has been interested in extending his results to make them apply to more general algebraic systems. He hopes to assemble the information in book form but is struggling at present with matters of rearrangement and simplification.

Dr. Coleman has been making a critical revision of an earlier paper of his on the gravitational shift in the solar spectrum, as the result of a suggestion made to him by Professor Hogg. He has prepared a short paper giving a simple proof of a theorem of Hölder on the automorphisms of the Symmetric Group. Under the stimulus and influence of Dr. Lorentz he has worked out a useful lemma generalizing a theorem of Bourbaki, has extended and simplified the famous Peter-Weyl theorem, and has extended Levi's theorem for infinitesimal groups to make it apply to a certain class of groups "in the large."

Dr. Lorentz has been conducting research on summability of divergent series, the theory of real functions, and functional analysis.

Professor Fraser has been doing research on non-parametric estimation and is in the process of generalizing some recently published results in this branch of statistics. A preliminary note on this work entitled "Non-Parametric Estimation IV," written jointly with Mr. R. Wormleighton, has been submitted to the *Annals of Mathematical Statistics.*

ORIENTAL LANGUAGES, UNIVERSITY COLLEGE

Reported by Professor W. R. Taylor

Professor T. J. Meek has been engaged in the following items of research: the origin of the Hebrew people, their law, and their religion; linguistic problems in the Code of Hammurabi; and the translation of the Old Testament.

Professor W. R. Taylor has been occupied with studies in, and a commentary on, the *Psalter.*

PHILOSOPHY

Reported by Professor F. H. Anderson

The staff have engaged in research on the following subjects:

Anderson, F. H. The philosophy of John Locke.

Edison, G. A study of Aristotle's *Metaphysics.*

Eschmann, I. T. Chronology and manuscript traditions of the writings of St. Thomas Aquinas. Critical edition of St. Thomas' *De Regno.*

Fackenheim, E. L. A survey of medieval Jewish philosophy (completed). The philosophy of Schelling's last period.

Goudge, T. A. The thought of C. S. Peirce (in press). The philosophical implications of the theory of evolution.

Long, W. M. D. A study of British idealism and its contribution to contemporary philosophy.

McRae, R. F. The political philosophy of David Hume.

MAURER, A. The Arabian background of the metaphysics of St. Thomas Aquinas. Critical edition of the Latin text of St. Thomas' Commentary on the *Liber de causis.*

MEHLBERG, H. A realistic interpretation of quantum theory. A critical survey of theories of truth.

PEGIS, A. C. History and source-book of medieval philosophy. An introduction to philosophy. Critical edition of the Latin text of the *Liber de causis.*

The following doctoral theses have been completed under the supervision of members of the Department.

HEIMAN, A. J. The esse of creatures in the doctrine of Jean Quidort.
HOPWOOD, V. G. A critique of objective standards in poetic judgment.

PHYSICS

Reported by Professor H. J. C. Ireton

SPECTROSCOPY

Supervised by Professors M. F. Crawford and H. L. Welsh

CUMMING, C. Raman spectrum of ethane.
THOMAS, R., CHISHOLM, D. A., and STANBURY, E. J. Raman spectra of gases.
DUNN, A. F. Infra-red spectra of gases at high pressures.
HUME, J. N. P. Theoretical calculations on hyperfine structure.
HURWITZ, J. K. Standardization of alloy steel spectrograms.
KELLY, F. M. and KURZ, W. Hyperfine structure with an atomic beam source.
LAURISTON, A. C. Selective reflection from metallic vapours.
MACDONALD, J. C. F. Induced infra-red absorption in gases.
OLSON, N. Hyperfine structure of yttrium.
STALLWOOD, B. H. J. Spectrographic method for the analysis of boron in alloy steels.
STAPLE, W. J. and THOMAS, R. Raman effect of rocksalt.
STEPHENSON, F. C. Characteristics of mercury arcs for Raman effect.
STOICHEFF, B. and ST. JOHN, G. E. Raman effect of gases at high pressures.

LOW TEMPERATURE RESEARCH

Supervised by the staff in Physics

FINDLAY, J. C. Chalk River low temperature research.
BROCKHOUSE, B. N. and PEPPIATT, H. J. Effect of stress and temperature on the magnetic properties of ferromagnetic materials.

ELECTRON MICROSCOPY

Supervised by Professor G. D. Scott

BOSWELL, F. W. C. Lattice spacing of very small crystals.
MCLAUCHLAN, T. A. and SENNETT, R. S. Structure of thin metal films.
MCLENNAN, D. E. Action of an electron beam on sodium chloride crystals.

ELECTRONICS AND HIGH FREQUENCIES

Supervised by Professors J. M. Anderson and R. W. McKay

COWAN, J. A. The counting of slow electrons.
ECKL, D. J. Duration of excited states in gases.
LOVE, A. W. Interaction of waves and electrons.
PAGHIS, I. Fields in cavity resonators.
REESOR, G. E. and HAROLD, K. E. Absorption of microwaves in ionized gases.
RITCHIE, D. K. Wide-band amplification.
SOANES, S. V. Audio frequency spectrum analyser.
WEST, D. C. Photoelectric effect of insulators.
WU, K. C. Frequency variation of active impedances.

X-RAYS

Supervised by Professors H. J. C. Ireton and E. J. Allin

MITCHELL, C. M. Study of alloys by X-ray methods.
NOAKES, G. E. Application of long wave-length X-rays to the study of particle size.

ULTRASONICS

Supervised by Professor C. Barnes

MOEN, C. J. and KARIM, S. M. Absorption of sound in liquids.

THEORETICAL PHYSICS

Supervised by Professor M. A. Preston

BIRD, J. R. Application of non-central forces in nuclear scattering.

GEOPHYSICS

Supervised by Professors E. C. Bullard, J. T. Wilson, and P. E. Pashler, Dr. A. A. Brant, and G. D. Garland

ANDERSON, D. V. and NORTHWOOD, T. D. Model seismology.
COLLINS, C. B., FREEMAN, J. R., MOUSUF, A. K., and ALLENBY, R. J. Application of mass spectrometry to geological age determinations.
FITZPATRICK, M. M. Gravitational studies on the Claire River syncline.
HALL, D. H. Interpretation of Precambrian geology of northern Saskatchewan by geophysical methods.
HUDSON, J. D. H. Calculated potential anomalies for mineral deposits.
HUDYMA, L. J. Electromagnetic induction in a sphere.
INNIS, M. S. J. Interpretation of gravity anomalies.
KAARSBERG, E. A. Precision susceptibility meter for rock samples.
LEITH, T. H. Geothermal studies in some mines at Kirkland Lake.
LIVO, G. O. I. Geological structure in northern Manitoba.
MACK, S. Z. and SERSON, J. H. Universal airborne magnetometer.
MARTIUS, Dr. U. and WHITHAM, K. Scintillation counting.
MORLEY, L. W. Airborne magnetometry for minerals.
NIBLETT, E. R. Heat flow from the earth.
NOAKES, J. E. Depth penetration, coupling factors, and terrain computation in geophysical exploration.
REFORD, M. S. Earth tides.
SLACK, H. A. Radioactivity of rocks.
UFFEN, R. J. Gravitational and geological study of the Grenville and Superior provinces.
WALTER, J. P. Correlation of radioactivity determinations with mineralization in Ontario.
WARD, S. H. Model testing.

COMPUTATION CENTRE

Supervised by Professor C. C. Gotlieb

KATZ, J. Electronic computing devices.

POLITICAL ECONOMY

Reported by Professor H. A. Innis

Professor Dawson is making a study of the relationship between British cabinet ministers and their departmental civil servants. He will continue this research in England under a Guggenheim Fellowship. Professors Clark and Macpherson have continued their study of the Social Credit movement. Professor Easterbrook is keeping on with his investigations of climate of enterprise. Miss Wallace is making a study of the work of Goldwin Smith.

PSYCHOLOGY

Reported by Professor E. A. Bott

Professor Bernhardt is continuing his long-term research on the selection and evaluation of medical students under an inter-departmental committee of the Faculties of Arts and Medicine. Professor Haagen has completed an extensive research on factors affecting the direction of generalization with controlled presentation of materials. He and a group of graduates have conducted experimental researches on cockpit lighting at the Institute of Aviation Medicine.

The following is the list of researches carried out by graduate students under the direction of the staff:

Agnew, J. N. Study of student attitudes towards mental illness.
Ainsworth, L. H. Rigidity as a manifestation of insecurity.
Alderdice, E. T. Analysis of errors on a test for abstract reasoning.
Allen, Mrs. M. E. Comparison of normals and mental patients on a drawing test.
Blum, Miss M. R. Security study No. 10: Adolescents and their use of money.
Brown, J. M. Flying training assessments in the R.C.A.F.
Bryan, J. R. Adjustment of delinquents and non-delinquents measured by tests.
Burd, F. W. Relative order in the attainment of concepts.
Coleman, J. R. Relation between personality measures and self-evaluation.
Coons, W. H. Comparison of abstracting in schizophrenia and organic psychoses.
Cox, A. E. Psychotic and non-psychotic performance in free association.
Ferguson, K. G. Time scores in mirror drawing by veterans suffering exhaustion.
Goudey, Miss E. Validity of TAT analysis by a conformity rating scale.
Gray, Miss C. V. Investigation of Shipley Hartford and Wechsler Bellevue scales as measures of deterioration.
Hay, G. M. Personality deviations in a delinquent group.
Hill, A. M. A test of practical judgment for selection of supervisors in industry.
Hiller, A. G. Measurement of differences between radicals and conservatives.
Hirtle, Miss D. V. Personality of children with psychosomatic disorders.
Joyner, R. C. Study of participation in the behaviour of an office staff.
Kalant, Miss L. Refinement of Shaw block test of abstract thought.
King, Mrs. M. R. Individual differences in characteristic feeling-tone.
Kliman, E. M. Study of TAT responses for a short form of the test.
Klions, H. L. "World-mindedness" in relation to information on international affairs.
Knoll, A. E. Validation of R.C.A.F. test battery for pilot selection.
Levinson, Mrs. T. F. Shaw block test and thought disorder in schizophrenia.
MacDonald, D. S. Relationship between alpha variants in the electroencephalogram and personality characteristics.
McLaren, Miss N. Relation between three measures of learning ability.
Matlow, Miss J. A test battery for R.C.A.F. ground personnel.
Munro, A. Evaluation of a method of teaching human relations in secondary schools.
Nicholson, R. H. J. Inquiry into consistency of employee behaviour.
Olstead, Miss M. Rosenzweig picture-frustration test and sociometric status.
Neill, J. D. Study of self-evaluation.
Newbigging, P. L. Understanding people by processes of perception.
Preston, C. F. The formation of general concepts by touch.
Pullan, Miss V. Absenteeism of school children and their later adjustment.
Riley, L. P. Associations with auditory stimuli.
Roseborough, Miss M. Effect of group composition upon students' interaction and academic achievement.
Ross, R. W. Normal and psychotic responses to the Rosenzweig test.
Sandercock, Miss M. G. Causal reasoning in schizophrenia.
Sayers, W. E. Personality factors related to practical judgment.
Scott, W. G. Problems in the development and validation of a job evaluation plan.
Shipman, W. G. Influence of attitudes on visual perception.
Smith, A. H. Factors influencing retroactive inhibition in the motor learning of white rats.
Sorenson, O. Relation of emotional adjustment and self-evaluation.
Steinberg, Miss J. Mutual assessment scale for R.C.A.F. flight cadets.
Tuck, J. A. Effect of two modes of presentation on learning.
Urquhart, G. M. Negative behaviour in infants.
Walter, Miss O. J. Concept of security in the area of completion.
Whitehouse, B. W. Security study No. 8: "Belongingness," its nature and measurement.
Wismer, H. D. Biographical inventory for selection of R.C.A.F. pilots.
Wismer, R. E. Paintings of pre-school children.

SLAVIC STUDIES

Reported by Professor B. E. Shore

Professor B. E. Shore continued researches into the history of the Russian fable in the eighteenth century. Mr. J. P. Odin continued researches on German-Russian

literary relations in the twentieth century, and Mr. R. V. Allen concluded a study of foreign borrowings in the laws of Catherine the Great.

ZOOLOGY

Reported by Professor J. R. Dymond

Atwood, C. E. The sawfly family Diprionidae.

Under the direction of Professor Atwood

Blais, J. R. The relationship of the spruce budworm to the flowering condition of balsam.

Cameron, D. G. Sucking insects of birch.

Baillie, W. H. T. Anomalies of the venous system in mammals. Study of two human embryos of approximately four and six weeks old.

Butler, L. Inheritance of body size in the house mouse. Chromosome linkage map in the tomato. Population cycles and genetics of the red fox in Quebec. Population cycles in fur animals.

Under the direction of Professor Butler

Martin, N. D. Genetics and ecology of the screech owl.

Craigie, E. H. Cell structure of the cerebellum of the albino rat during early postnatal life. Vascularity in the brains of snakes and lizards. Study of a hermaphroditic ling.

Dymond, J. R. Taxonomy and distribution of salmonoid fishes.

Under the direction of Professor Dymond

Peterson, R. L. North American moose with special reference to Ontario.

Scott, W. B. The Lake Erie cisco (*Leucichthys artedi*) population.

Tanner, H. C. Ecology of the red-backed mouse.

Wiggins, W. G. B. Ecology of the brown trout.

Engelbert, Miss V. E. Lungs of still-born and normal guinea-pigs with special reference to the alveolar epithelium. Growth and behaviour of certain tissues of a common frog, the chick, and the rat, when cultured *in vitro* with and without lymphatic and thymic tissues or extracts of these.

Fisher, K. C. Activity of small mammals at different light intensities, humidities, and temperature. A comparative study of the interaction of the responses to light and temperature in organisms. Relation of cellular metabolism and the growth of cells. Effects of insulin in cellular metabolism.

Under the direction of Professor Fisher

Warren, Miss A. A. Some observations on the capsular membrane of the unfertilized eggs of fishes.

Fry, F. E. J. Response of fish to environmental factors. Estimation of populations. Relations of fish populations to exploitation. Nutrient cycles in water.

Huntsman, A. G. Mechanism of fish migration. Movement of Fundy herring.

Under the direction of Professor Huntsman

Wood, K. G. Distribution of Gadidae on the Canadian Atlantic coast.

McCraw, B. W. Furunculosis in trout.

Ide, F. P. Taxonomic and ecological studies on aquatic insects. Distributional studies on stream insects including blackfly distribution in northern Canada. Habitats for aquatic insects in streams.

Under the direction of Professor Ide

Wood, K. G. Bottom fauna of some Algonquin Park lakes.

Langford, R. R. Factors affecting production in lakes. Fertilization of lake waters. Quantitative assessment of plankton methods.

Under the direction of Professor Langford

Moore, J. E. The entomostraca of southern Saskatchewan.

Neal, G. M. Variations in the rotifer genus *Pedalia*.

Walker, Mrs. N. F. Study of constitutional types susceptible to poliomyelitis. Inheritance of myositis ossificans progressiva. Etiological factors in malocclusion. Association of types of twinning with structure of placentae. Dermal configurations of northern Indians.

Faculty of Medicine

ANATOMY

Reported by Professor J. C. B. Grant

Under the direction of Professor S. H. Bensley

Dr. Tobie Muller of Pretoria University, Union of South Africa, as a visiting Fellow in the Department of Anatomy, has studied the effect of estrogen on the loose connective tissue of the albino rat. She has found that estrogen is an important factor in the production and maturation of the intercellular substances of connective tissue and that its action is considerably modified by hormones produced by the pituitary and adrenal glands.

Dr. Bensley collaborated with Mr. C. Monkhouse in the Department of Physiology in histological studies of tissue changes associated with (1) intravenous administration of heparin in the rat, and (2) anaphylactic shock in the dog.

Dr. Bensley continued her study of mast cells in relation to changes in the intercellular substances of connective tissue produced experimentally and by disease.

Under the direction of Professor A. W. Ham

In order to determine whether or not there are any specific features of malignant cells it is necessary to compare them with actively growing non-malignant cells of the same type. Regenerating liver tissue may be obtained from rats by means of a simple experimental procedure. To obtain rat liver tumour tissue in quantities Dr. M. I. Armstrong, in collaboration with Dr. Alice Gray, has now cultivated over twenty-five butter-yellow-induced rat liver tumours in fertile eggs and four have grown luxuriantly on serial transfer. Sufficient tumour tissue from this source is, therefore, now available to permit an extensive comparative study with regenerating liver cells to be made.

Dr. Marjorie Mosbaugh is using the mouse mammary tumour grown in the yolk sacs of fertile eggs as a means of testing a variety of substances for their possible efficacy in inhibiting the growth of tumour cells.

L. Warren has transplanted the adrenal glands of a large number of rats to their spleens so that the cortical hormones pass into the portal circulation instead of into the systemic. This study, amongst other results, should provide information as to the sites in the body where adrenal cortical hormones are inactivated.

Dr. Ham has collaborated with Dr. Stuart Gordon of the Department of Surgery in studying the fate and effects of transplanted thrice-frozen and thawed cancellous bone fragments.

Under the direction of Professor J. C. B. Grant

Dr. L. F. Levy has developed a technique for straining macroscopic structures and embedding them in plastic. Sections of the brain are particularly informative when so treated. Dr. William Paul has completed for publication the results of his investigation of the various forms and terminations of the pancreatic ducts. His data are derived from corrosion preparation.

C. E. Storton has continued to investigate by corrosion methods the portal circulation. He has also continued work on the broncho-pulmonary segments and on the pulmonary arteries and pulmonary veins.

Under the direction of Professor C. G. Smith

The incidence of neuroglial nodules on the stalk of the pineal gland and the relationship between these and the roentgenogram of the pineal gland were studied. The incidence was found to be high, 92 per cent, and to be similar in the two sexes and in young and aged adults. When the nodules were calcified they were

found to be responsible for the characteristic caplike anterior portion of the pineal gland shadow.

The survival time of the retina under conditions of increased intra-ocular pressure was investigated by Dr. C. D. Baird. He has demonstrated that with a pressure high enough to collapse the retinal vessels the retina can survive, judging from its histological appearance, after being deprived of its blood supply for up to ten minutes. This work is being continued.

Under the direction of Professor J. C. Watt

Dr. Watt has collected extensive data on the arrangements of the venous sinuses of the cranium. He is preparing for publication the results of his research.

BIOCHEMISTRY

Reported by Professor H. Wasteneys

Under the direction of Professor A. M. Wynne

Dr. H. B. Stewart has continued the investigation of the reaction of chloramine-T with amino acids and related compounds; and he has resumed his study of the properties and chemical nature of cytochrome c.

Mr. W. L. Holmes has made further studies of the influence of mammary and hepatic carcinomata, serially transferred in fertile eggs, on the cytochrome oxidase content of the tissues of the developing chick embryo. His study of the stability of cytochrome c has been completed.

Dr. C. G. Stewart has completed his studies of the response of normal human subjects and of patients suffering from malignant neoplasia to large oral doses of glucose. The response was evaluated in terms of blood levels of glucose, pyruvate, and lactate.

Mr. Holmes and Dr. C. G. Stewart have jointly undertaken an investigation of the comparative efficiency of oxidative phosphorylation in normal and cancerous tissues.

Mr. Tadeusz Bojarski of the University of Warsaw, who has held a UNESCO fellowship, has investigated the kinetics of the enzyme, lysine decarboxylase of *Bacterium cadaveris.*

Under the direction of Professor G. C. Butler

Mr. R. O. Hurst has investigated the action of phosphatases on the oligonucleotide obtained from thymonucleic acid. The sources of the enzymes were intestinal mucosa and the venoms of the rattlesnake and Russell's viper, all of which contain a phosphomonoesterase and a phosphodiesterase. The phosphomonoesterase has been removed selectively from Russell's viper venom leaving an enzyme preparation which will hydrolyse the oligonucleotide to mononucleotides. The resulting mixture has been separated by chromatography with an anion-exchange resin. Four fractions were obtained corresponding to the four mononucleotides expected and these are receiving chemical study.

Dr. A. M. Marko has developed a new method for isolating desoxyribonucleic acid from tissues, using dodecyl sulphate to precipitate the protein portion of the nucleoprotein. The method is more rapid, less laborious, and gives higher yields than procedures previously used. It has proved to be satisfactory both on a large and on a small scale with thymus, spleen, pancreas, liver, testis, and avian blood. The products obtained appeared uniformly to be highly polymerized and as pure as those resulting from other methods of isolation.

Mrs. M. A. Packham is studying the role of lactic acid in the synthesis of glucuronic acid by the rat, with the aid of C^{14}. When lactic acid synthesized with C^{14} in the carboxyl group was administered to rats previously dosed with α-naphthol,

significant amounts of C^{14} appeared in the excreted naphthol glucuronide. From the results of eight experiments it may be concluded that the incorporation of the lactate carbon into the glucuronide is much greater than in the liver glycogen and is greater than the incorporation found in control experiments in which C^{14}-labelled bicarbonate was given. The research is continuing with the use of lactate synthesized with C^{14} in the α and β carbons.

Under the direction of Professor B. F. Crocker

Mr. J. L. Koppel and Mr. C. J. Porter have been continuing their study of the metabolism of enzymes. A series of carbon and of nitrogen sources have been tested for activity in stimulating the formation of fumarase in cultures of *Micrococcus lysodeikticus* grown for twenty-four hours. Of the former, fumaric and lactic acids, and of the latter, asparagine and aspartic acid, were found to be the most active. Stimulation by fumaric acid has been found to be dependent on both its concentration in the medium and on the amount of nitrogen available to the cells in excess of that required for cell growth. Evidence has been obtained which indicates that the stimulatory effect of fumaric acid is increased under anaerobic conditions. The implications of this with regard to the mechanism involved are important and the phenomenon is being investigated further. Experiments are now being conducted to determine the conditions under which a reversible inhibition of multiplication of the cell during the period of stimulation of enzyme formation, which would not interfere too violently with other metabolic processes, can be brought about. This would make it possible to study the metabolism of this enzyme under conditions where the factor of natural selection cannot operate, and also to determine whether this stimulation is transmissable, once cell division is resumed.

Under the direction of Professor J. M. Fisher

Mr. J. S. Barlow has found that lithium, potassium, and radioactive sodium exchange so rapidly and so completely with all the sodium of chick muscle that its extracellular position is strongly suggested. A comparison of the rate of entrance, *in vivo,* of radioactive sodium (typically extracellular) with the entrance of radioactive potassium (usually intracellular) into a variety of tissues of young and adult chicks has likewise been obtained.

Miss A. P. Blake carried out some preliminary analyses of the salt and water in Rous sarcoma produced in hens and kindly provided by Dr. William R. Franks. These analyses were continued by Miss Jean Murphy. Miss Blake is investigating the effect of ions on the interaction of adenosine triphosphate and actomyosin fibres prepared from rabbit psoas muscle. The environment for maximum contraction having been determined, the fibres will now be analysed for K, Na, Cl and Mg. Because some criticism has recently been directed at the Van Slyke open Carius procedure for the determination of chloride in tissues, Miss Blake compared this procedure with the closed Carius method and found the former to be completely reliable.

Miss M. Taylor has completed her research on the seasonal variations in calcium, chloride, and water in frog muscle and plasma. The concentration of plasma calcium ions is remarkably constant throughout the year and hence cannot be related to hibernation.

The research on the relation of carbohydrate metabolism to intracellular potassium concentration has been extended, using leucocytes and frog muscle. External glucose caused a high intracellular potassium in leucocytes. Insulin (1 unit per 100 ml.) does not affect this result. Frog muscles have been shown to take in potassium in the presence of insulin and lactate; this uptake is abolished by iodoacetic acid.

The permeability of leucocytes to potassium and of dog red cells to sodium using radioactive potassium and sodium respectively has been investigated.

HYGIENE AND PREVENTIVE MEDICINE

Reported by Professor D. T. Fraser

Dr. M. H. Brown is investigating methods of drying BCG vaccine and the preparation of tuberculin from the BCG strain. Dr. F. H. Fraser is conducting a study of the antibiotic activity of several strains of Penicillium against Gram-negative bacilli of the enteric group. Conditions affecting the production of active substance, its stability, and its isolation from crude filtrate have been investigated.

Dr. F. O. Wishart is continuing his studies of recall doses of diphtheria and tetanus toxoids in relation to long-term antitoxic immunity in school-children and medical students. The results of the response to tetanus toxoid given by the nasal route have been reported.

Dr. R. J. Wilson has continued his studies on the growth requirements of *H. pertussis*. It has been found that growth of this micro-organism can be supported by a simplified medium consisting of an acid hydrolysate of casein, salts, two accessory growth factors, and starch. More recently it has been possible to substitute activated charcoal for starch, and attempts are now being made to replace the casein hydrolysate by amino acids.

Miss Sheila Toshach has presented her study of *C. diphtheriae* phages as a thesis for the M.A. degree. She has shown that a strain of phage has by cultivation been adapted to a culture of diphtheria bacillus against which it was originally inactive, which finding gives some promise of practical application in classification. Electron micrographs have been obtained of diphtheria phage which has not been photographed heretofore. Miss Elizabeth Whittaker similarly has completed her thesis for the M.A. degree on phages active against members of the mycobacterium group. Mr. S. Lesley, registered for the M.A. degree, is studying the relationship between virus and host cell by means of radioactive isotope technique.

In the sub-department of Parasitology, under Dr. A. M. Fallis, the investigation of the incidence of *Trichinella spiralis* in the Arctic has been continued. Dr. Kuitunen spent two months at Lake Harbour, Baffin Island, collecting material and investigating at first hand trichinosis and other parasitic infections in dogs and other mammals. As a result of a study of upwards of one thousand diaphragms, trichinosis was established as occurring in polar bear, fox, and dogs. The co-operative study with Dr. Malcolm Brown, Queen's University, on stool samples, swabs, and sera has been reported. The incidence of diphyllobothrium and enterobius infection was over 30 per cent, a finding similar to the series at Lake Harbour.

BANTING AND BEST DEPARTMENT OF MEDICAL RESEARCH

Reported by Professor C. H. Best

Professor C. C. Lucas, Drs. Jessie H. Ridout and Jean M. Patterson, and the Director of the Department have made a study of the time relationships involved in the lipotropic action of choline, inositol, and the two together in rats given a high vitamin diet following a period of vitamin depletion. The results reveal certain errors in technique and interpretation of some work published by others in this field. Dr. Lucas has established the organic sulphur requirement of weanling male rats of the Wistar strain and the minimal amount of methionine required to give maximal rate of gain in weight. A fraction was isolated from beef spinal cord from which cerebrosides and sphingomyelin are being separated for further study.

Dr. Lucas and Dr. Patterson are testing a new mineral mixture proposed for use in synthetic diets. It contains all the trace elements believed necessary for mammals and is made from salts which are available commercially in finely powdered form, thus avoiding grinding operations and greatly simplifying the preparation of large amounts of the mineral mixture.

Dr. Lucas and Dr. Ridout have made further studies of methods for lipid estimations in tissues. Dr. Ridout has devoted much time to the careful supervision of a long-term study of dietary cirrhosis in white rats which is being conducted in this Department.

Dr. Ridout and Dr. Patterson, with the technical assistance of Mr. Murray Emmons, have conducted many hundreds of lipid determinations in connection with various studies in the Department.

Miss Jessie Lang has become proficient in the microbiological assay of amino acids and has devoted most of her time to such determinations. She has also performed microbiological assays for choline and inositol in products and fractions of interest to different members of the Department.

Professor Gerald Wrenshall and Miss B. A. Karger have been studying the condensate from normal and diabetic human breath, by means of the mass spectrograph, to determine the acetone content. Dr. Wrenshall has conducted a very full programme of work on the insulin content of the pancreas of diabetic and non-diabetic human subjects and of dog pancreas after alloxan.

In the section of Histopathology, under Professor W. Stanley Hartroft, over 12,000 micro-sections have been prepared, many by special techniques, for the members of this Department and for those of the Department of Physiology. Dr. Hartroft has continued studies of hypertension in the rat of dietary (choline deficiency) origin. He has extended his investigation of the pathogenesis of dietary cirrhosis in rats and reported that the fatty cysts (lipodiastaemata) which form in the livers of these animals frequently rupture into both the biliary and the vascular systems. Dr. Hartroft is also completing a cytological survey of the islets of Langerhans in patients dying from both diabetic and non-diabetic conditions.

Dr. A. R. Colwell, Jr., working in Dr. Hartroft's section, completed his studies of the role of bile in the intestinal absorption of fat. He found that the percentage of fat excreted in the bile of choline-deficient rats is not increased when the liver is fatty.

Mr. R. R. Tasker, working in the section of Histopathology, has developed the technique for collecting lymph from the abdominal lymphatic trunk of the rat. He plans a series of investigations utilizing this method.

Dr. W. G. B. Casselman has studied various histochemical methods for the identification of lipids in micro-sections. He is also conducting experiments concerning hypertension in rats following choline deficiency and other conditions.

Miss P. J. Merritt, working with Dr. Hartroft, has investigated the relation of a deficiency of the heat-stable fraction of the vitamin B complex to dietary hypertension. Using Wistar rats, she has found that only a deficiency of choline is important in this regard. Miss Merritt also assisted Dr. Hartroft in the completion of a series of experiments which demonstrated the necessity of dietary choline for the reproduction of rats.

Professor L. B. Macpherson has begun an investigation into the nature and action of the pancreatic anti-fatty liver factor. Crystalline trypsin and chymotrypsin have been isolated from the crude factor. Experiments designed to test the hypothesis that it is this enzymic nature of the pancreatic factor which is responsible for its anti-fatty liver activity are being carried on in collaboration with Dr. G. H. A. Clowes, Jr. A pancreatic duct-ligated rat preparation devised by Dr. Clowes is being used as the experimental animal. The proteolytic activity in the duodenal contents of such an animal has now been shown to be very low or absent. The findings of Dr. Macpherson and Miss Eleanor Eldridge in their investigation of the soy bean phosphoinositide have indicated divergence from the original work on soy bean lipositol. Dr. Macpherson has improved the method for the isolation of crystalline lysozyme and with Dr. Lucas has devised a simpler and more accurate method for the lipid analysis of bile.

Dr. Clowes has evolved a technique for the ligation of the pancreatic ducts in rats which is now standardized and produces acinar atrophy in 80 per cent of operations. He has also been able to produce diabetes in rats by surgical removal of the pancreas.

An operation for approaching the mitral valve through the wall of the left ventricle is being developed by Dr. Clowes and Dr. J. Hunter. It depends upon sidetracking the circulation from the left ventricle by pumping blood from the confluence of the pulmonary veins into the systemic arterial system. This and other problems, such as a study of ulcerative colitis, may be considered joint efforts with the Department of Surgery as Dr. Clowes holds an appointment also under Professor R. M. Janes.

In February, 1949, Professor J. Markowitz and Dr. A. Rappaport and Dr. J. W. Scott of the Department of Physiology, University of Toronto, reported that, although ligation of the hepatic artery of dogs almost always resulted in their death, the administration of large doses of penicillin for ten days postoperatively usually prevented such an outcome. During the past year Dr. Colwell, Dr. D. Fraser, Jr., Dr. Rappaport, and Dr. C. Vuylsteke have confirmed this report and have extended the work. The improved rate of survival as a result of the use of antibiotics indicates that bacteria play an important role in producing death of animals, but it has been shown that despite the combined use of penicillin, streptomycin, chloromycetin, sulphamerazine, and gas gangrene antitoxin, lethal liver damage may still occur after hepatic artery ligation. In the latter animals there is good evidence that bacteria were not a factor in causing liver damage or death.

Mr. G. Balasubramanyam and Dr. Fraser have studied the action of a "native" insulin obtained by pilot scale trials of a modified method for the preparation of insulin. A preliminary study of the chemical nature of the "native" insulin seems to indicate that it might be an insulin-protein complex. The preparation appears to have a constant chemical composition as shown by constant values for total protein nitrogen per unit of insulin. These values, and a potency of the zinc-free, dry preparation of nearly four insulin units per mg., indicate that the preparation is impure when compared with crystalline insulin. The "native" insulin has a prompt action and also one which persists for prolonged periods.

Factors influencing the development of aortic atherosclerosis have been investigated in rabbits fed cholesterol by Dr. J. B. Firstbrook. The extent of lesions has been found to be proportional to the average blood cholesterol level, the initial body weight, the rate of weight gain, and the duration of cholesterol administration. There is a high correlation between the extent of lesions and average blood cholesterol level when other factors are constant, but caloric restriction markedly inhibits the development of lesions even in animals with high blood cholesterol levels. Choline fed in capsule form has been found to have no effect on the development of atherosclerosis.

Dr. W. J. Linghorne and Mr. D. C. O'Connell are continuing their dental research. Under experimental conditions both reattachment of the soft tissues and restoration of lost alveolar bone have been effected. Studies for the purpose of obtaining further knowledge of the principles concerned in these reparative processes are being continued. Studies of fuso-spirochetal infection in relation to periodontal disease are also under way.

The following work is being carried out under the direction of Professor W. R. Franks. The biological effect of radiation has been studied with the assistance of Mr. G. A. Meek. This project includes investigations of the influence of background radiation on carcinogenesis and the modification of the causative agent of Rous sarcoma by radiation of specific wave-lengths with a view to producing *in vitro* the change in the agent which has been shown to result in an immune response *in vivo*. A reduction in the background radiation to 0.2 ions per cc. per second has

been shown not to influence the carcinogenic activity of methylcholanthrene in mice.

With Mr. R. Bather and Mr. A. Rodgman an inhibition of chemical carcinogenesis has been shown by hormones known to play a part in normal metamorphosis (pupating hormone which contains bromine and thyroxine). Conversely, the carcinogen dibenzanthracene has shown a seasonal antagonistic action to thyroxine. Thyroxine seems to inhibit the growth but not the infectivity of Rous sarcoma when administered with the agent. A carbamido conjugation between thyroxine and dibenzanthracene has been shown to be non-carcinogenic yet gives evidence of retaining the thyroxine activity on tumour inhibition.

The work on the isolation and modification of a causative agent in various tumours has been carried out with the assistance of Miss J. Manser and Mr. M. Sutton. With Miss Manser it has been shown that a more infective extract can be prepared from Rous sarcoma by extracting with potassium solutions which are similar to intracellular rather than intercellular cation content. The use of similar extracts of mammalian tumour has failed to produce any cell-free agent to date.

The use of kinetic jet injection of tumour cell fractions into normal cells in various stages of mitotic or metabolic activity has been commenced. To date, birds injected by this technique have eventually grown tumours that have regressed and thereby conferred an immunity. This work is being extended.

The use of chemically conjugated carcinogens with proteins has indicated that any immunity conferred with these solutions is of secondary order.

In the sub-department of Cellular Physiology work on the following research projects has been carried out under the direction of Professor B. Mendel. Dr. Mendel and Mr. D. Myers have continued their investigation of the characteristics of the common esterases present in tumour cells and the susceptibility of these enzymes to various inhibitors. Mr. Myers has also been engaged in experiments designed to elucidate the characteristics of the complex formed between the cholinesterases and their irreversible and reversible inhibitors.

Professor Rosemary Hawkins and Miss M. Nishikawara have investigated the mechanism whereby the ingestion of hypolipotropic diets induces a highly significant elevation in the level of plasma pseudo-cholinesterase. Weanling rats as well as adult rats exhibit this phenomenon, and its prevention can be effected by the addition of choline, methionine, betaine, or triethylcholine to the diet. The ingestion of a hypolipotropic diet by thyroidectomized rats fails to produce an elevation of the plasma pseudo-cholinesterase beyond that due to thyroidectomy itself. Dr. Hawkins, Dr. Hunter, and Miss Nishikawara have also studied the effect of various factors on the level of pseudo-cholinesterase in the intestinal mucosa of the rat.

The investigation of the amino acid composition of liver proteins of hepatoma-bearing rats has been continued by Dr. P. L. Hoogland, Miss Lang, and Mrs. J. Gillespie. This work was undertaken to study the possible changes in the composition of proteins of liver cells during transition from normalcy to malignancy induced by feeding p-dimethyl-aminoazobenzene.

In the sub-department of Synthetic Chemistry, under the direction of Professor Erich Baer, the following research work was carried out. Miss M. E. Russell and Mr. J. Maurukas continued in their endeavours to synthesize α-cephalins. Both the L-α-distearoyl and L-α-dipalmitoyl cephalin were obtained in configuration and constitutional purity. The synthesis was improved in several respects. Mr. A. G. Newcombe is developing a general procedure which ultimately should permit the synthesis of either saturated or unsaturated α-lecithins and α-cephalins. Three saturated L-α-phosphatidic acids were synthesized and their choline and ethanolamine salts were prepared. Co-operative studies with several independent serological laboratories are being undertaken regarding the value of the synthetic L-α-lecithins as one of the two components of the antigens used in the serological tests for syphilis. The synthesis of the second component of the antigen, i.e., that of cardiolipin or of closely related substances, is being undertaken. It is hoped that these experiments

will lead to a fully synthetic antigen. The synthesis of a newly discovered catalyst in carbohydrate metabolism, namely, that of 2.3-diphosphoryl D-glyceric acid has been accomplished.

MEDICINE

Reported by Professor R. F. Farquharson

The investigation of the effect of dicumarol therapy in patients with cardiac infarction has been continued by cardiologists in the three University hospitals.

A combined study on the effect of different anticoagulants in various thromboembolic conditions has been undertaken by the Departments of Medicine, Surgery, and Obstetrics and Gynaecology and Dr. Peter Moloney of the Connaught Laboratories.

Drs. Greenwood and McKelvey have completed the construction of an apparatus for studying the changes in the sub-divisions of lung volume. They are using it in the study of the causes of dyspnoea in cardiac failure.

The introduction of ACTH and cortisone as agents with amazing physiological and therapeutic effects has opened a new field for investigation. Dr. M. Ogryzlo, working with Drs. Fletcher and Wallace Graham at Sunnybrook Hospital and at the Toronto General Hospital, has studied their effect in various types of arthritis and in a number of collagen diseases. Drs. Macdonald and MacKenzie, at Sunnybrook Hospital, have demonstrated a pronounced beneficial effect of cortisone in a severe case of steatorrhoea. Working with Dr. Wightman, Dr. Bardawill has been studying the metabolic changes which occur when patients suffering from leukaemia and allied diseases are treated with ACTH, urethane, and X-ray radiation. In collaboration with the Department of Ophthalmology, studies are in progress on the use of ACTH and cortisone in external diseases of the eye. Dr. FitzGerald has continued studies begun with Dr. C. McLean of Queen's University on the effect of cortisone administration on experimental nephritis. In all the work on cortisone and ACTH, as in many other matters, the collaboration of Dr. Dauphinee and his staff in the Department of Pathological Chemistry is greatly appreciated.

In association with Dr. K. J. R. Wightman, Dr. O. H. Warwick has been carrying out trials of new chemotherapeutic agents in leukaemia and lymphoblastoma; Dr. I. Rother has been exploring the usefulness of tissue imprints to clarify the pathology of lymph node disorders; Dr. J. G. Watt has continued his studies of the minimal requirements for liver extract in pernicious anaemia patients; Dr. MacMillan has continued his work on defects in blood coagulation; and a field expedition to study a large family of haemophilics in northern Ontario has been carried out.

Dr. Paul O'Sullivan, working with Dr. E. J. Maltby, has made a follow-up study of the progress of patients suffering from ulcerative colitis.

Dr. R. C. Dickson has studied the effect of administration of Tween 80 on the absorption of fat and carbohydrate in patients with steatorrhoea. Dr. Wightman has continued metabolic studies in patients with steatorrhoea.

Dr. W. R. Campbell has been working on a method for the rapid and more accurate determination of potassium in biological fluids.

Working in association with Dr. W. R. Campbell and with Dr. R. Mustard of the Department of Surgery, Dr. MacAllister Johnston has been studying the effectiveness of the administration of radio-iodine in treatment of carcinoma of the thyroid and certain types of goitre with or without hyperthyroidism, for which it appears to be the best method of therapy. Dr. Johnston and Dr. Squires have continued studies on the effect of administration of thyroid on the function of the thyroid gland; they have shown that patients with an intact thyroid gland are able to tolerate ingestion of thyroid, gradually increased till huge doses are administered, without any persistent increase in the basal metabolic rate or in the serum hormonal iodine level, and with little physiological disturbance.

Dr. H. E. Pugsley has been studying the effects of various antibiotics administered intramuscularly or as an aerosol on the clinical condition, amount of sputum, and the blood and sputum antibiotic levels of patients with chronic bronchiectasis.

Dr. William Clarke and Dr. R. C. Smith, working with Professor P. H. Greey, have continued to study the effect of various dosage schemes and different methods of administration of antibiotics, and the use of agents to raise the blood levels through interference with renal excretion.

Dr. H. H. Hyland and Dr. H. J. Barnett have completed a study of the clinical manifestations of some ninety brain stem lesions. Dr. Hyland has also reported on cortical venous thrombosis in the puerperium, and has continued the study of the prognosis in cases of subarachnoid haemorrhage.

Dr. J. C. Richardson has completed a study of post-traumatic cerebral syndromes.

Dr. J. A. Walters and Dr. Boothroyd have continued the study of the various types of patients with disorders often referred to as fibrositis.

OBSTETRICS AND GYNAECOLOGY

Reported by Professor H. B. Van Wyck

The Rh Committee established in November, 1946 under the chairmanship of Dr. Philip Greey with Dr. Low representing the Department, for the investigation of the Rh factor problem in the Toronto area, is still actively carrying on. Approximately 30,000 tests have now been completed and it is expected that a report of the results of the survey with the experience gained in the treatment of iso-immunized mothers, and the results from the treatment of haemolytic disease of the newborn, will be prepared in co-operation with the Department of Pathology and the Hospital for Sick Children. Under the direction of Dr. Mann, the research on the mechanism producing convulsions in eclamptic toxaemia is progressing. The work on the excretory function of the skin in eclamptic toxaemia is being continued by Dr. Mann in collaboration with Professor Dauphinee of the Department of Pathological Chemistry. To date sodium, potassium, and total nitrogen determinations on skin excretions have shown measurable amounts. The work has led to the suggestion that the electrochemical phenomena of skin potential might be an important factor in the initiation of the convulsive state. The work on this aspect and the construction of special apparatus is being done with Dr. F. E. W. Wetmore of the Electro-Chemical division of the Department of Chemistry. During the past year, Dr. Mann has carried out considerable research on the development of a self-contained portable resuscitation apparatus for the newborn infant. A completed model was placed at the disposal of the members of the staffs in Obstetrics and Anaesthesia and it is now on trial in the Private Patients Pavilion of the Toronto General Hospital. The new apparatus has been very satisfactory to date and it is hoped that in a few months the apparatus may be generally available.

Dr. Goodwin reports that in the year 1949-50 a review of 1,200 obstetrical deliveries has been made in association with Dr. H. M. S. Tait, to determine the relation of the speed of establishment of respiration in the newborn to maternal sedation during labour with varying doses of seconal, demerol, and hyoscine, and also to the type of anaesthetic administered at delivery. Dr. Goodwin has also investigated the possibility of the control of stress incontinence by the use of ischiocavernosus muscle sling. A number of cases have been treated surgically in this way, so far with good results.

In the Pathological Department under the direction of Dr. D. N. Henderson, a review of tubal pregnancy has been completed and the result of this study is awaiting publication. Dr. Henderson is continuing the study of intra-epithelial carcinoma of the cervix. Up to the present, approximately more than five hundred cervices have been completely sectioned and studied. Where possible the histological changes

noted in the cervix are correlated with cytological changes noted in the vaginal smears. It is hoped that this study will clarify the problem of carcinoma *in situ* and establish the value of vaginal smear examinations in the detection of early unsuspected cervical carcinoma. A beginning is being made in screening all patients admitted to the Out-Patient Gynaecological Clinic by examination of the vaginal cytology.

The work begun by Dr. Maloney in the investigation of the cytological smear examination in the determination of prognosis and the reaction to therapy of tumours treated by radiation is being continued by Dr. Crawford Shier under the direction of Dr. W. G. Cosbie. The treatment and investigation of pelvic cancer have been continued by Dr. Cosbie and Dr. J. R. MacArthur, who represent the Department in the Ontario Institute of Radiotherapy. It is noted with gratification that a steroid chemistry laboratory, with Dr. Gornall in charge, has been established in the Department of Pathological Chemistry under the direction of Professor Dauphinee. This work, begun on a sound basis, is expanding rapidly. A co-operative study with the Department of Pathological Chemistry has been started to investigate the excretion of pregnanediol in habitual and threatened abortions. The Department is represented by Dr. Melville Watson, Dr. F. E. Bryans, and Dr. W. J. McGanity in this project. The co-operative study of the Department of Public Health Nutrition under Professor E. W. McHenry and our Department, represented by Dr. W. J. McGanity, has continued the investigation of protein metabolism in pregnancy. Much fundamental knowledge has been accumulated from normal and toxemic pregnancies during the past year.

On July 1, 1949, Dr. H. V. Morton, a Fellow in Anaesthesia, began to evaluate certain methods of analgesia in labour. Her research included the determination of the value of trichlorethylene in labour and the practical advantages to be obtained in the first stage of labour by paravertebral block and sympathetic block. This work was carried out under the clinical supervision of Dr. D. M. Low and Dr. H. J. Shields, Head of the Department of Anaesthesia, and a beginning was made before the end of the academic year in the trial of priscoline as an alternative to the sympathetic block. A summary of Dr. Morton's work is as yet unpublished, but in her hands, trichlorethylene has been proved a safe and useful analgesic, although there is still considerable uncertainty as to the practical value of sympathetic block.

At the Wellesley Division, Dr. Dafoe reports the continuation of his work on the electro-stethoscope in conjunction with the division of Electro-Chemistry under Professor Wetmore.

Dr. John Fletcher of the Department of Paediatrics has continued his study at the Burnside of the problems related to anoxia, atelectasis, and prematurity and has a paper reporting his work in the press.

OPHTHALMOLOGY

Reported by Professor A. J. Elliot

Dr. R. W. Robertson has been working in the Department of Medical Research under Dr. Best. He has been under the immediate direction of Dr. George Clowes. He has been studying systems to by-pass the left ventricle, to allow exposure of the mitral valve; also he has taken part in studies of the lysozyme content of the large bowel as related to ulcerative colitis.

Dr. C. D. Baird has been working in the Department of Anatomy under the immediate direction of Dr. C. G. Smith. He has been studying the survival time of retinal cells when deprived of blood supply by increased intra-ocular pressure.

Dr. D. Black has been working under Dr. P. H. Greey in the division of Bacteriology. He has done the routine eye cultures and cytology, continued the passage of toxoplasma, and has been studying the characteristics of the human lens as a culture medium.

Dr. L. A. Probert has been working in the Department of Zoology, sub-department of Genetics, under Dr. L. Butler. He has been investigating the hereditary aspects of glaucoma, and also doing a genetic study of a piebald strain of mice.

OTO-LARYNGOLOGY

Reported by Professor P. E. Ireland

Dr. Brydon Smith has continued his research on degeneration of bone under the combined direction of Dr. J. A. Sullivan and Professor A. W. Ham in the Department of Anatomy. This was presented by Dr. Sullivan at the International Congress in London, England. In this programme have also been included experimental studies in the artificial production of peripheral seventh nerve paralysis. The results were presented by Dr. Sullivan at the American Otological Society in San Francisco in May.

Dr. Eric Stark, in conjunction with Professor J. K. Ferguson, has conducted studies on the toxic properties of cocaine and pontocaine in the upper and lower respiratory tract.

Dr. D. E. S. Wishart has continued his studies of methods of examining hearing in children and the treatment of sinusitis in bronchiectatic children.

Dr. J. B. Whaley has been associated with Dr. Gladys Boyd of the Department of Paediatrics in a study of the bronchial and lung changes in tuberculosis in children. Dr. W. B. Wallace is beginning a programme of investigation of sinus disease in children.

Dr. H. W. D. McCart has continued his study of the surgical and radiological treatment of malignancies of the sinuses, nasopharynx, and larynx.

Dr. D. P. Bryce is making a clinical study of anoxemia during bronchoscopy with the assistance of the Department of Pharmacology under Professor J. K. Ferguson.

Dr. G. A. Fee is studying the effect of hearing aids on cases of deafness with a large perceptive element. He is also endeavouring to evaluate the use of plastic inserts as an aid to hearing in conductive deafness which is due to damage to the drum membrane.

PAEDIATRICS

Reported by Professor A. Brown

In co-operation with the Connaught Medical Research Laboratories, Dr. Nelles Silverthorne, Dr. M. P. Armstrong, and Dr. A. M. Goodfellow have continued clinical and epidemiological studies on poliomyelitis in Dufferin County. Pathways of infection were traced from one patient to another, the minor illness or abortive form of the disease playing a major role in its widespread dissemination. Thirty of the thirty-nine cases investigated were of this variety. The recently described Coxsackie virus was isolated for the first time in Canada from a number of our study patients, some of whom also excreted the virus of poliomyelitis. The study is continuing throughout the winter months in order to survey the inter-epidemic nature of the disease.

Dr. C. S. Anglin, in co-operation with Dr. W. Mustard, has evaluated the use of priscoline in the relief of pain, tenderness, and muscle spasm in acute poliomyelitis. In both priscoline-treated and control groups the general tendency was to improvement but it was not more dramatic in the priscoline group than in the controls. Thirty poliomyelitis patients who were not treated with priscoline were re-examined at an average of thirty-five days from date of onset of the infection, and in only one of these patients was there any evidence of residual pain, tenderness, or muscle spasm.

A follow-up study of the recovered acute bacterial meningitis cases admitted to the Hospital for Sick Children in the past ten years is in progress by Drs. Silverthorne and Anglin to determine the incidence and types of sequelae. Complete physical examination and, in special cases, intelligence tests and investigation of hearing and vestibular dysfunction are included in the examination. To date, 159 survivors have been rechecked and 72.3 per cent showed no sequelae, 21.4 per cent showed minor non-incapacitating and 6.3 per cent showed severe incapacitating sequelae.

The study on the development of arteriosclerosis by Dr. A. L. Chute has been continued and amplified. His research work, in collaboration with Dr. W. Mustard, on devising a method for cardiac surgery has progressed and they now have seven animals which have survived the various types of intracardiac operations for indefinite periods of time. Further work is being done in this field with the hope of making it applicable clinically.

In association with Dr. Albert M. Fisher of the Connaught Laboratories, tests of a hyperglycaemic factor isolated from pancreas have been made in cases of glycogen disease. The results from this work have been negative in character, since there was no apparent increase in blood sugar values following its administration.

Dr. Chute has made a survey of the incidence of diabetes in the town of Newmarket, with a population of about 4,800 people; 4,400 of these people have had a urine and blood examination which revealed that there were 30 diabetics who were previously known and 20 diabetics who were discovered by this survey. It is hoped that the survey will be continued to include other population groups such as a northern Ontario mining town and one of the French-Canadian centres in the eastern part of the province. Diabetes is not a reportable disease, and it is hoped that by such a survey we shall get a true picture of the importance of this condition. With the co-operation of the Ontario College of Education and the Faculty of Dentistry of the University, Dr. Elizabeth Chant Robertson, Dr. S. H. Jackson, and Dr. T. G. H. Drake have made continuous observations on the mental and physical health and development, absenteeism, and physical fitness of approximately two hundred lower school children who, for a period of slightly over two school years, had been given a noon lunch of good nutritional value. The effect of the school lunch on the food consumed in the home by these children and their families has also been studied. Similar observations have also been carried out on a carefully matched control group. The data are now being collected for publication.

Dr. John D. Keith has studied the post mortem and clinical material in congenital heart disease. Data were collected on the following malformations: ventricular septal defect, atrioventricularis communis, Eisenmenger's complex, coarctation of the aorta, auricular septal defect, patent ductus arteriosus, tetralogy of Fallot, tricuspid atresia, transposition of the great vessels, pure pulmonary stenosis, pulmonary stenosis with patent foramen ovale, persistent truncus arteriosus. The material, together with a discussion of the methods of investigation, operative procedures, results, and prognosis, was set down in a paper that will appear in print shortly. In co-operation with Dr. John Munn, an apparatus for use in angiocardiography has been devised which will take serial X-rays at the rate of four per second. A paper describing the apparatus together with its application in the diagnosis of a wide variety of defects in congenital heart disease, cyanotic and non-cyanotic, has been submitted for publication.

Further studies in angiocardiography in congenital heart disease were carried on in certain specific abnormalities; these are being reported separately.

In co-operation with the Department of Health of the City of Toronto, an investigation into the prevalence of all types of heart disease in children, as well as of functional or incidental heart murmurs, was carried out by Drs. J. D. Gardiner and J. D. Keith.

A study of the diagnosis of auricular septal defects by means of an intracardiac catheter has been in progress for the past year and has been completed.

Dr. J. P. Fletcher has continued his work on the newborn infant. Apparatus employing oxygen at very low pressure has been perfected for use in resuscitation of the newborn; this obviates the danger of the high pressure systems at present incorporated in most commercially produced machines. A report on a three-year study on resuscitation of the newborn has been prepared for publication.

Further study of the effects of damage to the nervous system at birth and in early infancy has been made. Infants admitted to the infant ward with such damage have been followed both during their hospital stay and subsequently in the Neurological Out-Patients Department. This work will require several years before final conclusions can be drawn.

The walking reflex of the newborn infant has been studied further. It is a useful indication of intactness of the nervous system at birth but does not seem to possess any special significance.

Clinical studies in the Allergy Clinic by Dr. J. R. Ross and Dr. H. E. Edwards have confirmed the previously reported observation that, in the treatment of hay fever and asthma, slowly absorbed solutions of the appropriate antigen are greatly superior to aqueous solutions. A higher final dosage of the antigen may be achieved and fewer treatments are necessary to reach this amount. Polyvinyl alcohol is the substance used to delay the absorption.

The psychological factors associated with the treatment of the diabetic child are being surveyed and the effect of correction of these factors upon therapy is being evaluated by Drs. W. A. Hawke and Mary Eddis. At the Country Branch the psychological principles associated with the care of the convalescent child are being studied. The problems encountered in the home with the cerebral palsied child and the manner in which these specific problems affect the results of treatment are being investigated by Dr. T. G. Hall. In co-operation with the York County Children's Aid Society the relationship of a psychiatrist to a children's agency is being observed by Dr. S. J. Holmes.

An exhaustive study of tuberculosis in children is being carried out by Dr. Gladys Boyd. This work includes clinical research on the effect of such drugs as streptomycin, paramino-sulphacylic acid, and the sulphones in various types of tuberculosis, and laboratory determinations of the effect of these drugs on the infecting organisms. Thorough bronchoscopic studies are also being carried out on tuberculous children to determine the pathology of the disease on the bronchial tree and the effect of therapy on such lesions when present. Clinical studies including follow-up reviews of cases of pleural effusion and erythema nodosum have been made by Dr. Miriam Brick and Dr. Isabel Booth. Continuous studies are being made of bronchiectasis. The effect of aureomycin in these cases is under investigation. Sequestration of the lungs is being given special consideration.

In collaboration with Dr. Donohue of the Department of Pathology of the Toronto General Hospital, Dr. C. E. Snelling has continued the studies on the use of an antifolic acid compound in the treatment of leukaemias. No marked success has been achieved, though in about 20 per cent of cases a remission of varying periods was brought about. The results suggest that some similar compound may be of definite lasting benefit. Recently, in association with the Hospital Department of Pathology and the University Department of Medicine, the use of ACTH in leukaemia treatment has been studied. It is too early to draw any conclusions, but the results so far suggest even better effects than with the antifolic acid compounds.

The value of replacement transfusion with the use of female Rh negative blood in the treatment of erythroblastosis is being observed.

Dr. J. H. Ebbs and Dr. A. Sass-Kortsak are studying the effect of severe infections and toxic states upon the changes in the liver in young infants. Attempts are being made to relate the conditions found in the liver to the various etiological

agents and to the previous diet. Attempts are also being made to assess different methods of treatment. The possible use of lipotropic preparations is also being investigated.

Work on malnutrition due to defective digestion and absorption is being continued by Dr. J. F. McCreary and Dr. Vivian Abbott. It is felt that the diagnosis has progressed as far as is possible with the available knowledge of this disease. Accordingly investigations are under way in an attempt to determine the cause of the condition. Various hypotheses are being studied. It is hoped that these will lead eventually to a means of prevention.

Dr. Andrew Hunter has made an intensive study of the factors affecting the Knoop reaction for histidine. Means have been found of increasing considerably the delicacy of this reaction. At the same time there has been developed a colorimetric method of histidine determination not only more sensitive but also more convenient than any previous one. Studies of applications of this method are in progress.

Dr. S. H. Jackson has continued his biochemical work. Studies have shown that the retention of fluorine when fed as bone is equal to that of soluble fluoride unless the fluoride content of the material is low as is the case in veal bone. Further observations on the cumulative effect of long-term fluorine feeding are in progress.

The biological value of the protein of cooked bone has been found to be so low that it cannot serve as a source of protein for body repair even when supplemented with nine parts of animal protein to one of bone protein.

Studies of vitamin A in liver have failed to indicate any mobilization of this vitamin in the fatty livers of choline-deficient rats.

Studies of intestinal phosphatase in rats have indicated that the concentration of this enzyme in the intestinal mucosa is more than doubled during active absorption of a wide variety of foods. Variation in intestinal phosphatase during fasting and digestion is reflected in the blood serum phosphatase. Treatment with ACTH, which is known to stimulate the rate of intestinal absorption, was found to have no effect on the concentration of phosphatase either in the serum or in the intestinal mucosa.

Various biochemical metabolic studies are being undertaken coincidental with the investigations involving treatment with ACTH and cortisone.

A practical book on nutrition for the use of public health nurses, social workers, and homemakers is being prepared by Dr. Elizabeth Chant Robertson.

PATHOLOGICAL CHEMISTRY

Reported by Professor J. A. Dauphinee

Dr. Sinclair, of the Department of Medicine, has continued to work in close co-operation with this Department in the clinical investigation and follow-up of patients with a variety of liver diseases. In addition to liver function studies, carried out with the assistance of Miss Peppiatt, an attempt has been made to investigate more fully the effect of low salt diets and mercurial diuretics on the oedema and ascites of cirrhotic patients and some very interesting states of marked hyponatremia without the usual manifestations usually associated with low blood sodium levels have been observed. The following two papers were given at the annual meeting of the Canadian Medical Association in June, 1949 as a part of these studies: "The Diagnosis of Liver Disease," by J. A. Dauphinee; "The Treatment of Liver Disease," by Jonathan C. Sinclair.

Dr. R. D. Hawkins of the Banting and Best Department of Medical Research has made a series of observations on the plasma pseudo-cholinesterase content of the blood of many of these patients with liver disease and has shown that there is a close association between the level of this enzyme in the blood and the clinical state of the liver.

Mr. C. E. Downs has studied in detail the analytical possibilities of the flame photometer. He has shown that although this instrument gives satisfactory (and

very rapid) answers for potassium and sodium in serum a number of changes in procedure have to be introduced if this instrument is to be used for the analyses of fluids which contain a large amount of potassium and a very small amount of sodium.

This Department has co-operated with Professor Kerr and Dr. George Low of the Department of Therapeutics in their study of patients suffering from diabetic coma, acute uraemia, and familial periodic paralysis, and, with the help of Miss Constance McLeod and Mr. C. E. Downs, a very complete examination of the electrolyte and other changes which take place in these patients has been made.

Some preliminary studies have also been begun in co-operation with Dr. John Mann of the Department of Obstetrics and Gynaecology on the influence of hot baths on the excretion of sodium, potassium, chloride, and of non-protein nitrogenous compounds through the skin.

Mr. Ian Walker has developed a markedly improved modification of the Sakaguchi reaction for the determination of arginine and glycocyamine and has been attempting to separate these two compounds by various absorptive techniques.

Dr. Dorothy Ley has been estimating the iron content, fat content, and soluble protein content of the livers of patients who have died from cirrhosis and other forms of hepatic disease in an attempt to find out whether or not there is any relationship, particularly in regard to the iron content, between the type of cirrhosis encountered here and those which have been described by the Gillmans of South Africa.

Dr. J. F. R. Fleming who has been working in this Department as part of his graduate training in Surgery has been associated with the work which Dr. Bigelow of the Department of Surgery has been carrying out on animals with induced hypothermia. He has made a very interesting study of the acid base changes which occur in cooled animals and has shown that they develop, unless prevented by special procedures, a very severe degree of gaseous acidosis indicated by a definite fall in the blood pH and a sharp rise in the P_{CO_2}.

In addition to these studies several series of observations have been made on the effect which has been produced by cortisone and ACTH on the blood and urine electrolytes of a variety of patients in the Toronto General and Sunnybrook Hospitals who have been receiving this form of therapy.

In the Radioactive Isotopes Laboratory, Dr. W. Paul and Miss Britton have worked in close association with Dr. M. W. Johnston of the Department of Medicine and the other members of the clinical sub-committee in their studies on the use of radioactive iodine in the diagnosis and treatment of the various forms of thyroid disease including carcinoma of the thyroid and certain cases of hyperthyroidism. They have also co-operated closely with Dr. K. J. R. Wightman and Dr. C. J. Bardawill of the Department of Medicine in their investigations into the uses of radioactive phosphorus.

Under the direction of Professor T. F. Nicholson

Dr. M. Kovalik and Dr. T. F. Nicholson have been engaged in an investigation to determine the diet which, in dogs, will result in the minimum rate of protein catabolism. This work is preliminary study in the experimental investigation of the relative value of dietary treatment and the artificial kidney in acute uraemia.

Dr. Nicholson has continued the study of renal function as affected by unilateral kidney lesions. It has been found that minimal damage to the proximal tubules, which does not affect the kidney's ability to excrete para-aminohippuric acid or diodrast and which does not change the tubular permeability in respect to inulin or urea, results in a decrease in the urinary titratable acidity and phosphate and an increase in the amount of ammonia produced.

Under the direction of Professor A. G. Gornall

An extensive programme of research has been initiated in the new Steroid Hormone Research Laboratory during the past year.

Assay procedures for the 17-ketosteroids, corticosteroids, and pregnanediol have been set up and tested experimentally. Mr. Willoughby has improved the colorimetric method of determining pregnanediol and is investigating the "formaldehydrogenic" steroids which can be removed from chloroform extracts of urine by different solvents. Miss M. P. Walker is studying the losses that may occur at different stages in the pregnanediol methods.

Encouraging progress has been made in a number of clinical investigations. Several endocrinological cases of special interest have been studied and four major research projects are in progress with the following clinical collaborators: (1) with Dr. J. A. Dauphinee and Dr. J. C. Sinclair of the Department of Medicine, "Metabolism and excretion of steroid hormones in cirrhosis and other liver diseases"; (2) with Dr. M. Ogryzlo, Dr. Almon Fletcher, Dr. Wallace Graham and others of the Department of Medicine, "Excretion of steroid hormones during ACTH and cortisone therapy"; (3) with Dr. R. Gjessing and Dr. L. Gjessing of the Department of Psychiatry, "Activity of the adrenal cortex in periodic catatonia"; (4) with Drs. F. E. Bryans and W. J. McGanity of the Department of Obstetrics and Gynaecology, "Excretion of pregnanediol in relation to the problem of threatened abortion."

Dr. Gornall has also resumed charge of the Clinical Investigation Laboratory which is now working in close correlation with the Steroid Laboratory on a number of problems. Three projects have continued from last year. Mrs. H. Wallace has carried out the dye determinations in a study of blood volume in chronic shock (with Drs. W. C. Bigelow and R. Fleming of the Department of Surgery) and has performed the pyruvic acid analyses in a study of carbohydrate metabolism in diabetics (with Dr. R. M. Taylor of the Department of Medicine). She has also continued the multifractionation studies of the serum globulins in patients with various diseases.

Special emphasis has been given this year to the study of nitrogen metabolism in different diseases, particularly in relation to endocrinological factors. Three problems are being studied with the following collaborators: (1) with Dr. M. Ogryzlo, Dr. A. Fletcher, and Dr. Wallace Graham of the Department of Medicine, "Nitrogen metabolism in rheumatoid arthritis during therapy with ACTH and cortisone"; (2) with Dr. K. J. R. Wightman and Dr. C. J. Bardawill of the Department of Medicine, "Nitrogen metabolism in leukaemia during therapy with urethane, ACTH, and cortisone"; (3) with Dr. R. Gjessing and Dr. L. Gjessing of the Department of Psychiatry, "Nitrogen excretion during the different phases of periodic catatonia."

Dr. Gornall has also been studying in collaboration with Dr. Clowes, Department of Surgery, and Dr. O'Sullivan, Department of Medicine, the lysozyme content of the feces in ulcerative colitis.

PATHOLOGY AND BACTERIOLOGY

Reported by Professor William Boyd

Dr. H. J. Barrie, in conjunction with Dr. A. J. Rhodes of the Connaught Laboratories, has been continuing his investigations on malignant granuloma of the nose. He has also been studying the anatomy and function of the intrinsic smooth muscle of the kidney and its relation to arteriovenous anastomoses at the arcuate line. Dr. G. W. Cates and Dr. Barrie have been investigating the effect of injections of adrenalin on the circulatory pattern of the kidney.

Other studies are those of Dr. A. Bogoch on the late lesions of sarcoidosis, the relation of sarcoidosis to cirrhosis, and multiple aneurisms of the iliac arteries; Dr. L. H. Campbell on abacterial pyuria; Dr. J. S. Crawford on organic lesions of the heart in dietary deficiencies; Dr. J. M. Finlay on amniotic fluid embolism of the lung following delivery; Dr. W. R. Harris on the role of intercellular substances in disease; Dr. W. K. Lindsay (with Dr. F. P. Dewar) on the relation of neuromata

to metatarsalgia; Dr. I. D. Maxwell on sarcoma of the prostate; Dr. B. S. Wells on the pathology of muscle.

In the division of Bacteriology, in co-operation with the staff of the Toronto Hospital, Weston, a study on the value of p-aminosalicylic acid in the treatment of tuberculosis was continued. Bacteriological studies on an alternate series of cases treated with streptomycin alone and combined with PAS indicate that combined therapy markedly retards the emergence of tubercle bacilli resistant to streptomycin.

Dr. R. M. Price is continuing her interest in the prophylactic vaccination against tuberculosis. Last term about one hundred individuals were vaccinated with BCG supplied through the courtesy of Professor Armand Frappier, University of Montreal, and Professor Milton Brown, School of Hygiene. All those vaccinated became allergic, twenty-eight days later, to 1 mg. of old tuberculin.

The following investigations are in progress: Dr. G. H. Hawks, incidence of Candida albicans in bronchoscopic aspirations from the Toronto Hospital, Weston, torulosis of the brain (with Dr. S. J. Holmes); Dr. H. M. Ross, effect of cortisone on experimental infections, assay of Rh hapten; Dr. D. Black (Hermant Fellow in Ophthalmology), bacterial and viral infections of the external eye, nutritive value for bacteria of lens substance; Dr. H. N. Cleland, effect of hexachlorophene on the bacterial flora of the hands; in collaboration with the Department of Medicine, blood concentrations resulting from the use of various antibiotics, value of benemid in raising the blood concentration of penicillin, effect of terramycin on the gonococcus.

In the division of Neuropathology, Dr. Mary Tom has prepared a paper in conjunction with Dr. J. C. Richardson on "Hypoglycaemia from islet-cell tumour of the pancreas, with amyotrophy and cerebrospinal nerve cell changes." Dr. A. Bonkalo of Budapest has studied the effects of leukaemia on the central nervous system, Dr. C. L. Aszkanazy varices of the brain and spinal cord, and Dr. S. J. Holmes torulosis of the nervous system.

PHARMACOLOGY

Reported by Professor J. K. W. Ferguson

A new field of research has been entered this year with the installation of equipment to measure extremely small quantities of radon in exhaled or atmospheric air. Dr. Edgar J. Martin joined the Department in June, 1949 and after working six months at Chalk River to learn methods, he transported his delicate equipment to Toronto and is now studying the effects of exposure in the radium industries.

Work on the pharmacology of substances affecting thyroid function has continued with the assistance of Dr. R. D. Prueter. Two very interesting substances, diiodothyronine and diiodohydroxybenzoic acid, are under study. The first suppresses thyrotropic action and the second antagonizes thyroxine.

Dr. Code Smith has continued his studies on cardiac irregularities under cyclopropane anaesthesia. He has found that the beneficial effect of procaine on these irregularities is due to an atropine-like action which is not shared by all local anaesthetics.

Studies on two local anaesthetics have been pursued intensively by Dr. E. J. Stark. Part of the study was done on animals in the Department of Pharmacology; the other part on patients, with the co-operation of the Department of Oto-Laryngology.

Dr. W. Paul, after a year's absence in England, has taken up again his development of the photoelectric oximeter. Under his direction Dr. John Hazlett has continued the work, now in its fourth year of using the oximeter during surgical operations on the chest in the Toronto General Hospital and other hospitals in the city.

The instrument has proved its value as an indicator of the state of the patient during thoracic operations but expert help is still needed to run it and service it. Dr. Paul is making steady progress in improving the accuracy and reliability of the instrument.

Under the direction of Professor G. H. W. Lucas

Miss E. J. McCree has continued her investigation of tests for the identification of synthetic narcotic drugs related to pethidine. Two sensitive tests for bemidone have been developed. Mr. J. R. MacDougal has continued his researches on the identification of barbiturates and glycosides, employing colour and crystal tests. Some useful crystal tests for barbiturates have been developed. Mr. M. Misiak is investigating crude opium with the object of discovering some means of differentiating opium from different sources. These three studies were initiated at the request of the Dominion Government to help in the control of illicit traffic in drugs.

Dr. H. W. Smith has continued his studies on the toxicity of antabuse, a drug used in the treatment of chronic alcoholism. With the help of Mr. J. A. Long data are being collected on patients who have been treated with the help of antabuse for one year or longer. With the help of Mr. R. E. Popham, Dr. Smith is conducting a survey of traffic accidents, with a view to ascertaining by tests of alcohol content of the breath the contribution of alcohol to causation of accidents. In this work he is receiving the whole-hearted co-operation of the city and provincial police.

Dr. R. Smithurst has taken up a study left unfinished by Dr. R. J. S. Tickle on the alveolar oxygen tension, and blood oxygen content during nitrous oxide anaesthesia.

PHYSIOLOGY

Reported by Professor C. H. Best

Dr. R. E. Haist and his group have continued their investigations concerning factors affecting the growth of the islets of Langerhans, and have been studying also the influence of the pituitary, thyroid, adrenals, and gonads on secretin and the external secretion of the pancreas. Dr. M. A. Ashworth has been testing the effect of various dietary changes on islet growth. Mr. B. Kinash has been investigating the influence of the continuous, intra-arterial injection of glucose on islet volume and also the effects of pituitary growth hormone and of ACTH. Mrs. B. E. Hines and Dr. Ashworth have been following the changes in blood sugar level in rats continuously injected with glucose, and the effect of different, additional procedures on this level. The sustained blood sugar levels are being considered in relation to islet changes. Miss M. O. Maykut has continued a study of the effects of hypophysectomy on pancreas weight and on the amylase content of pancreas. She has been determining the influence of thyroid administration in hypophysectomized and in normal rats and is examining the effect of thyroidectomy on the amylase content of the pancreas. Mr. J. E. C. Dorchester has been investigating the influence of the pituitary, thyroid, and gonads on the secretin content of the intestine.

The work of the section of Biophysics under Professor D. Y. Solandt has been directed along two major lines. The use of a microwave beam for the exploration of cardiac septal potentials is under trial and an electronic radiator for this purpose has been built and tested. The investigation of olfactory phenomena, the second major field of investigation, has been carried forward by Dr. J. D. McQueen. Studies on the cerebral representation of olfaction, as indicated by cortical potentials produced by peripheral olfactory stimuli, have been initiated following the design and construction of special electronic apparatus.

Dr. E. A. Sellers has continued a study of the effects of cold and other stresses on intact animals. Dr. S. S. You, Dr. Rosemary Wen You, and Mr. N. W. Thomas have been associated in the investigation. Changes in nutritional requirements and

in the adrenal and thyroid glands have been demonstrated. In the cold the usual response to the feeding of diets low in choline does not occur, as there is no excess deposition of liver fat. This interesting finding is being examined further in the hope that it may throw some light on the mechanism of action of choline. It has been found that adrenalectomy usually prevents the loss of nitrogen from the body after injury. The role of steroids such as cortisone and desoxycorticosterone is being studied in this reaction. Dr. Sellers is continuing experiments on the production of adenomas of the thyroid by prolonged, continuous dosage of thiouracil.

A "hot" room has been constructed in the sub-basement of the Medical Building, in which a strong cobalt^{60} source has been installed. This will be used to investigate the effects of gamma radiation on the endocrine system. Dr. Sellers, Mr. J. C. D. Barlow, and Mr. J. M. O. Wheatley are responsible for this project.

Studies on the role of the anterior pituitary gland in carbohydrate and fat metabolism have been continued by Dr. J. Campbell, Dr. H. P. Lei, and Mr. I. W. F. Davidson. Highly purified growth hormone and adrenocorticotrophic hormone (ACTH) were prepared from anterior pituitary glands and were tested biologically and by physico-chemical methods. Administration of the purified growth hormone to experimental animals, with established sensitivity, produced definite diabetes which became permanent on prolonged administration of the hormone. The diabetes is due to failure of insulin secretion by the pancreas, as indicated by the degeneration of the beta cells of the islets of Langerhans, by the very low insulin content of the pancreas, and by the nature of the diabetes. The ACTH produced signs of diabetes which were much less intense than those due to the growth hormone. Dr. Campbell is assisting the Connaught Laboratories programme for the production of ACTH.

Dr. J. Markowitz and his group are continuing their studies on dogs enabled by penicillin administration to survive total ligation of the hepatic artery. Dr. A. Rappaport is studying the effect on liver structure and function of curtailing the blood supply to the liver and is continuing his important work on the refashioning of the mitral valve, using the auricular appendage. Dr. W. M. Lougheed, Dr. Rappaport, and Mr. J. S. Munroe are investigating the effects of antibiotics on the survival of dogs after hepatectomy. A feature of this research has been the perfecting of a simple, dependable method for removing the liver in one operation. Dr. J. Archibald, a graduate student from the Ontario Veterinary College, Guelph, is making a study of the factors influencing the survival and function of the homo-transplanted kidney.

Dr. Lougheed is studying by a new approach the role of the pyloric section of the stomach in regulating gastric acidity.

Dr. E. Fidlar has found that the platelet agglutinating property of commercial heparin appears to be a stable characteristic that is not significantly altered by storage. Neither has it been altered by addition to dog's blood and reisolation. Further investigation of this property is awaiting the production of heparin from canine material by Mr. F. C. Monkhouse.

Mr. Monkhouse has come to the Department from the University of Saskatchewan where he collaborated with Dr. L. B. Jaques in devising a new method for the determination of heparin. He is now working on a method of his own for the estimation of heparin in blood, which it is hoped may have a clinical application by giving a more accurate check on administration than the usual clotting-time tests. A recent case of Dr. R. L. MacMillan's at the Toronto General Hospital has given interesting results.

In collaboration with Dr. Sellers' group, a study of blood changes in irradiated animals has begun. Mr. Barlow, Mr. Monkhouse, and Dr. Fidlar have examined rats which had received a dose of X-rays of 400 R. Although no significant change was found in coagulation time, a well-marked drop in the platelet count occurred 10 days after exposure. A decline in the leucocyte count also appeared, beginning

within 24 hours and persisting at 72 hours. Counts at 24 days after exposure indicated that recovery was not yet complete.

Dr. E. S. Goranson and Mrs. N. M. Danoff have investigated changes in rat muscle phosphorylase activity produced by starvation, and by refeeding after an interval of starvation. The relative proportions of phosphorylase *a* and *b* are altered in the 48-hour fasted rat with the active *a* form becoming more predominant. Carbohydrate refeeding after an interval of fasting has a marked effect in lowering the proportion of phosphorylase *a*. This is less pronounced on refeeding with an isocaloric fat diet. A reversal in phosphorylase activity towards that of fed controls was observed one hour after the simultaneous administration of glucose and insulin to fasted rats but not after the injection of insulin. Glucose alone, one hour after its injection into fasted rats, had a variable effect in reversing the activity of the enzyme.

Miss E. F. Purdie and Dr. Goranson have made a series of studies on muscle hexokinase activity in starved rats and in alloxan-diabetic rats, with insulin *in vitro*. In muscle preparations from 48-hour starved rats the hexokinase activity was lower than in those from fed animals, but this difference was not observed on aging the extracts or when the substrate concentration was elevated. Insulin *in vitro* produced no significant change in muscle hexokinase activity in alloxan-diabetic rats, or in fed or starved non-diabetic animals.

PSYCHIATRY

Reported by Professor A. B. Stokes

This year the chief research interest of the Department of Psychiatry has been biochemical. Dr. Rolf Gjessing and Dr. Leif Gjessing have followed some cases of periodic catatonic excitement by a kinetic methodology developed by them in Norway. One or two patients, investigated daily over many months, have shown important relationships between their metabolic functioning and mental state. The effect of ACTH on these relationships is being studied, in co-operation with Dr. A. G. Gornall of the Department of Pathological Chemistry. Dr. J. E. Goodwin has continued with his neurophysiological studies on alpha variants in cerebral electrical activity.

Psychometric research by Dr. M. R. King using a new projection technique has thrown light on the conforming or non-conforming relations of the individual to his cultural setting. Dr. D. S. MacDonald has completed a research on the personality associations of abnormal electrical activity of the cerebral cortex. Mr. B. Quarrington has started an investigation in group dynamics using a small group of selected patients, brought together for the purpose of discussing their personal problems. Mr. G. G. Elliott has continued to observe the performance of patients in block design construction with a view to isolating factors of significance for organic cerebral disease. Miss O. Griffith has interested herself in the effect of ward staff changes on the behaviour of patients in the ward.

A sociological inquiry into the emotional adjustment of school children has been continued by Mr. J. Seeley, assisted by Mr. R. A. Sim and Mr. T. J. Mallinson. Important determinants of bad mental health in the young are emerging. Mr. Farrell Toombs, of the Institute of Industrial Relations, is surveying the human and material organization of a psychiatric clinic with particular reference to interdisciplinary difficulties.

Apart from physical, psychological, and social researches of these sorts, items of clinical inquiry have been undertaken by the working staff. In particular an important follow-up study of patients submitted to leucotomy has been carried out in conjunction with the Neurosurgical division of the Department of Surgery.

RADIOLOGY

Reported by Professor A. C. Singleton

Research work in the Department of Radiology has been, as in other years, joint research with members of other departments.

Dr. C. L. Ash and Dr. Norman Delarue of the Department of Surgery have continued a study of the value of hormone therapy, particularly testosterone and oestrogen in late cases of carcinoma of the breast.

Dr. D. T. Burke has been continuing the investigation of radiographic density in planigraphy and has produced a colour film with sound, outlining and illustrating "The Radiological Investigation of the Cervical Spine." This film is to be shown at the Sixth International Congress of Radiology in London this coming summer.

Dr. O. B. Millar, in association with Dr. J. R. Wightman and Dr. O. H. Warwick of the Department of Medicine, has undertaken a study of the value of nitrogen mustard and some of its new derivatives in the treatment of lymphoblastomas and allied conditions.

Dr. John Munn has been conducting research into the appearance of the menstrual cycle in relationship to the appearance of secondary centres of ossification. Dr. Munn is continuing the investigation of pulmonary changes in pancreatic fibrosis.

Dr. M. V. Peters, in association with Dr. Anathalie Heath under the direction of Professor W. R. Franks, and with histological studies by Dr. W. S. Hartroft, has continued research into the influence of irradiation of the thymus gland on the incidence and course of leukaemia in a highly leukaemic strain of mice.

Dr. Peters, in association with Dr. Geraldine C. Maloney and Dr. Crawford B. Shier of the Department of Obstetrics and Gynaecology, has been investigating the value of cytological smear examinations as a possible indication of the response and prognosis of uterine tumours treated by radiotherapy.

In collaboration with Professor E. W. McHenry of the Department of Hygiene, Dr. Peters has undertaken a study of the effects of pyridoxine in X-radiation sickness.

In association with Dr. H. W. Wookey of the Department of Surgery, Dr. Peters has conducted a detailed survey of all the cases of carcinoma of the tongue and lip treated at the Ontario Institute of Radiotherapy from 1924 to 1944.

SURGERY

Reported by Professor R. M. Janes

Under the direction of Dr. W. G. Bigelow

Dr. J. C. Callaghan has carried out experimental researches on hypothermia used as a means of reducing oxygen requirements of the body sufficiently to allow exclusion of the heart from circulation and permit intracardiac surgery. In collaboration with Mr. J. A. Hopps (an electrical engineer and member of the National Research Council of Ottawa, on loan to the laboratory) and with the co-operation of the Division of Aviation Medical Research, R.C.A.F., he has evolved a radio-frequency method of rewarming animals at low body temperatures, and studies have been carried out on electrophrenic stimulation in hypothermic animals. He has been engaged in investigation of an electric artificial pace-maker for standstill of the heart, and of the influence of cortisone on blood sugar and survival of animals exposed to cold air and the immersion in cold water. In collaboration with the Department of Physiology studies have been made on blood sugar levels in conscious animals exposed to severe cold for prolonged periods. He has taken part in a joint study, with Dr. John Scott of the division of Neurosurgery, Dr. R. McQueen, and the Department of Physiology, on the effect of hypothermia upon the behaviour and electroencephalographic findings in Macchus monkey.

Studies have been made on acid base changes of the blood in hypothermia by Dr. J. F. R. Fleming, in collaboration with Professor J. A. Dauphinee and Mr. Clarence Downs of the Department of Pathological Chemistry. Dr. Fleming has also examined the effect of cortisone on burns, as well as the effect of cortisone on intravascular agglutination of erythrocytes (sludged blood) and sedimentation rate. In co-operation with the Department of Pathological Chemistry microscopic observations have been made of blood flowing through the cortex of living mammalian kidney, and of the effect of crush injury, shock and adrenalin on the cortical blood flow.

Dr. Bigelow has also directed certain clinical research. Dr. J. F. R. Fleming, in collaboration with Professor A. G. Gornall of the Department of Pathological Chemistry, has studied the management of surgical shock in the poor risk patient (the probable role of intravascular agglutination of erythrocytes and the production of reduced blood volume). Dr. O. V. Gray has investigated the etiology and treatment of postphlebitic ulcers and the relationship between lower extremity fractures and the postphlebitic state. Much of Dr. Bigelow's work has been aided by a grant from the Defence Research Board.

Other research in the Department has included a study of sensation and pain in paraplegia by Dr. E. H. Bottercll, in collaboration with Dr. John Scott and Dr. A. T. Jousse.

Dr. R. I. Harris, aided by a National Research Council grant, has made a study of low back pain and sciatica and has carried out investigations on an improved type of tourniquet. Under his direction Dr. J. M. Lessard has reviewed the end results of treatment of fractures of the neck of the femur with special reference to the problems of avascular necrosis of the femoral head. Dr. P. O. Crassweller, aided by a grant from the Ontario Cancer Treatment and Research Foundation, has investigated the end results of treatment of malignant bone tumours.

Dr. G. H. C. Joynt has investigated the experimental production of bronchiectasis.

Dr. F. G. Kergin has made certain studies on the development and application of the oximeter, in association with the Department of Pharmacology. Under Dr. Kergin's direction Dr. J. W. Hazlett has investigated the healing of wounds of the bronchi.

Dr. I. B. Macdonald has carried out work on the transplantation of tissues and organs.

Dr. K. G. McKenzie has made a clinical investigation on the value of lobotomy and the proper selection of patients for this operation. This is being continued jointly by the division of Neurosurgery and the Department of Psychiatry.

Dr. R. A. Mustard has reviewed and followed up all cases of carcinoma of the thyroid treated at the Toronto General Hospital, and with Dr. MacAllister Johnston has investigated the use of radioactive iodine in the treatment of carcinoma of the thyroid and recurrent hyperthyroidism.

Dr. W. T. Mustard and Dr. A. L. Chute have made investigations on extracorporeal circulation and a biological oxygenator.

Dr. H. F. Robertson has made plethysmographic studies of cases of peripheral vascular disease and assessed a new and simplified apparatus which might prove to be of practical value for use by clinicians. He has also made an investigation of coronary flow distal to an intraluminar block.

Dr. C. J. Robson has carried out an experimental study on the surgical correction of uretero-pelvic junction strictures of the kidney.

Dr. J. L. Russell has done certain investigation of pyeloplasty for stricture of the uretero-pelvic junction without the use of splinting or drainage.

Dr. E. B. Tovee has directed Dr. W. B. McClintock in an investigation of closed loop obstructions and studies on aseptic necrosis of the head of the femur.

THERAPEUTICS

Reported by Professor R. B. Kerr

Dr. George Low with Dr. R. B. Kerr has continued the investigation of changes in electrolytes particularly potassium and phosphate in cases of diabetic acidosis under treatment. Detailed study of a case of anuria due to carbon tetrachloride was carried out in which a method of intestinal perfusion with sodium sulphate solution was used; a marked lowering of the serum potassium from high levels to normal limits accompanied the application of this method. An interesting case of Cushing's syndrome was studied in detail in which marked improvement followed treatment with testosterone. This work has been done with the kind co-operation of Professor Dauphinee of the Department of Pathological Chemistry.

Continued study is being made of cases of diabetes mellitus which began in childhood, with special reference to the occurrence of degenerative lesions in long-standing cases. This is a co-operative study with the Department of Medicine and Dr. A. L. Chute of the Department of Paediatrics.

Faculty of Applied Science and Engineering

Reported by Dean K. F. Tupper

AERONAUTICAL ENGINEERING

Under the direction of Professor B. Etkin

H. D. Proctor-Gregg, "Design of a wind tunnel duct."
J. D. Stewart, "Design of wind tunnel fan and straightliner system."
S. Young, "Investigation of transition sections in channels and ducts."
E. C. Augustine, "Investigation of potential flow around corners."

Under the direction of Professor G. N. Patterson

D. Bitondo, "Wave interaction at supersonic speeds." Experimental evidence has been obtained showing that plane shock waves can be amplified.

E. K. Fallis, "Preliminary design of a liquid-fueled rocket." Information on the German V-2 rocket has been reviewed and the preliminary design of a liquid-fueled, single-step sounding rocket has been calculated.

W. B. Fallis, "Design and application of a new aerodynamic range." An entirely new instrument has been designed for the study of free flight problems at speeds above ten times the velocity of sound.

I. I. Glass, "Design and development of a wave interaction tube for the study of non-linear waves." This instrument is now available for the study of a wide range of non-linear wave interactions in one dimension.

D. G. Gould, "Wave interaction in one-dimensional unsteady flow." Some basic wave interactions have been studied using the wave interaction tube.

D. H. Henshaw, "Development of a hypersonic wind tunnel." Valuable information has been obtained with a small wind tunnel which will improve the efficiency of the large supersonic wind tunnel now under construction.

G. W. Johnston, "Conical diffusers." The results of this work indicate the possibility of improving the blast time of intermittent supersonic wind tunnels.

J. D. Lee, "Condensation in supersonic flow." A study has been made of the effects of humidity on supersonic flow.

R. K. Lobb, "Study of supersonic flows in a shock tube." Complete details have now been made available on the design of a shock tube for use as a type of supersonic wind tunnel.

I. S. McLeish, "Design of rocket motors." Particular emphasis has been placed on heat transfer problems in high performance rockets.

E. K. Parks, "Investigation of the oblique reflection of shock waves." The shock tube has been used for the study of the reflection of a strong shock wave at a wall.

A. M. Patterson, "New methods of pressure recovery in a supersonic wind tunnel." Special consideration has been given to the theory and application of grating diffusers.

J. Ruptash, "One-dimensional supersonic flow." A study of new techniques for the investigation of high-speed flow has been made.

G. B. Waterman, "The Long-Range Guided Missile." A review of unclassified literature is given with special reference to launching problems.

Under the direction of Professors T. R. Loudon and B. Etkin

Analysis of flight tests of "Loudon" glider designed by B. S. Shenstone and W. Czerwinski as a project for undergraduate instruction.

CHEMICAL ENGINEERING

Under the direction of Professor W. F. Graydon

Research in solubilization.

Under the direction of Professor J. G. Breckenridge

D. W. H. MacDowell, to further a sterochemical study, is synthesizing a resolvable cyclo-octatetraene derivative.

Under the direction of Mr. A. V. DeLaporte

Mr. DeLaporte has applied chlorine dioxide to trade wastes containing phenols with results that have been put into practice industrially.

Under the direction of Professor R. R. McLaughlin

J. H. E. Herbst has prepared highly substituted sodium carboxymethyl cellulose and developed satisfactory methods for its analysis.

W. Sacks has made a solvent fractionation of butyl acetate extracts of waste sulphite liquor.

D. H. Francis has determined the rate of hydrolysis in the system water-diethyl ketone.

Under the direction of Professor W. C. Macdonald

N. L. Kelly has completed a research on the bacteriological treatment of tannery waste.

Under the direction of Professor G. W. Minard

R. N. Dempster has completed a research on heat-transfer coefficients with a helical coil transfer surface.

J. R. Ufford has completed a research on limited liquid and air flows in packed absorption towers.

Under the direction of Professor E. A. Smith

S. Sandler has completed a research on the effect of catalysts on the oxidation of decahydronaphthalene.

ELECTRICAL ENGINEERING

Under the direction of Professor G. Sinclair

W. J. Surtees and J. H. Craven have been investigating the mutual coupling between slot, loop, and dipole antennas.

F. V. Cairns has completed an investigation of the design of arrays of antennas to produce optimum patterns.

J. L. Yen has completed a theoretical investigation of radiation from a dipole antenna mounted in a cavity set in an infinite ground plane.

J. R. Wait has been investigating various geophysical methods of prospecting which depend on the propagation of electromagnetic waves in the earth.

Under the direction of Professor D. N. Cass-Beggs

R. J. Good and J. W. L. Duncan have completed studies in the analysis and performance of typical servo-mechanisms.

L. A. Borth has developed and built an analogue computer for the study of linear and non-linear servo-systems.

Under the direction of Professor V. G. Smith

R. F. Johnston and H. H. Stein made investigations of certain electronic circuits used in digital computers for storing, counting, and transferring information and numbers.

MECHANICAL ENGINEERING

Under the direction of Professor E. A. Allcut

E. H. Dudgeon has studied further the structure and properties of heat insulating materials using the eight-inch hot plate and air pressures greater and less, respectively, than atmospheric. Tests have been carried out on plain air spaces and on materials of known form. Further tests are now being carried out using glass wool insulation at various packing densities and an eight-point recording potentiometer has been installed to increase the accuracy of this work. Equipment to maintain a constant water temperature between zero and 100 degrees F. has also been installed and will add to the reliability of the work. The objective is to determine the relative importances of conductance, convection, and radiation in the transmission of heat through various kinds of thermal insulating materials.

Under the direction of Professor W. G. McIntosh

J. C. Corker has made a study of the effects of various degrees of clearance between the punch and die in blanking dies.

Under the direction of Professor I. W. Smith

Mr. W. Shelson is developing a new scattered light technique for determination of stress distribution in three-dimensional problems by the photoelastic method.

Mr. B. Chous has completed a study of the damping values of cork vibration insulators under dynamic load conditions.

In the study of wear in bearing metals, coefficients of dry friction and rates of wear at various loads and speeds have been obtained for a number of materials, including pure metals. Wear under boundary lubrication conditions is now being investigated.

Under the direction of Professor G. R. Lord

Graduate students have completed researches on the flow over spillways with regard to over-all performance and the prevention of erosion.

The new River Flow Laboratory has made it possible to carry out useful experiments connected with water power and flood control projects which are being constructed in the province. One of these experiments entails the investigation of large butterfly valves and the study is being made with transparent plastic pipe using air as the flow medium.

Under the direction of Mr. R. O. King

The research on the initiation and propagation of combustion which was reported in the session 1948-9 has been continued with the assistance of the Defence Research Board in 1949-50. Considerable experimental work has been done with various fuels, working under different conditions in variable compression engines, and five reports have been published in the *Canadian Journal of Research* during the past twelve months. Five other reports are now available in manuscript form and will be published in due course. This experimental work is being continued on two new engines, the characteristics of which will enable the scope of the research to be widely extended.

Under the direction of Mr. F. C. Hooper

In the fundamental heat transmission field, a new instrument has been developed which will permit the determination of thermal conductivity in moist materials and in materials such as soils, *in situ*. The work was financed through the National Research Council and a paper has been published describing the work to date.

Two separate heat pump projects were initiated. Under a Defence Research Board grant, a heat pump suitable for use in the Canadian Arctic was designed and built at Toronto, and was installed in Churchill for field operation through the winter. This heat pump, which utilizes two new principles, has shown promise of wide applicability. In co-operation with the Ontario Hydro, a ground-coil source heat pump has been installed in an occupied residence to provide technical data on ground coil design and information on economic applicability with respect to Ontario residences. Both these researches are continuing, and interim papers are being prepared for publication.

Thermal conductivity tests have been carried out for the National Research Council and other organizations.

Under the direction of Professor L. E. Jones

H. M. McFarlane and W. J. Laari completed studies on hydraulic performance of two non-standard spillway designs.

G. E. MacIsaac is continuing investigations on a non-chokeable centrifugal pump.

METALLURGICAL ENGINEERING

Under the direction of Professor L. M. Pidgeon

A. Green has continued the investigation of the oxidation of titanium and its alloys. Titanium alloys are stable up to about 500°C., above which oxidation becomes continuous. This work is sponsored by the High Temperature Metals Associate Committee of the National Research Council, and is carried out with the co-operation of the Ontario Research Foundation.

O. J. C. Runnalls is working on the iodide method for the purification of metallic titanium and zirconium. Methods have been developed to measure rate of reaction between these metals and halogens.

A. Hanson has continued his investigation of the high temperature reduction of silicate slags by carbon.

A. W. Bethune has measured the rate of reduction of SiO_2 by carbon *in vacuo*. The volatile monoxide SiO is the primary product.

G. G. Michaud has developed a method for measuring solubility of sulphides in molten slags. The molten system is contained in a frozen layer of one of the constituents.

Under the direction of Professor B. Chalmers

K. T. Aust has extended his previous investigation to the study of the free energy of crystal boundaries in lead and has shown that his results are compatible with the Chockley and Reed theory of boundary structure.

K. V. Gow has developed a new technique for growing crystals with the required characteristics in copper.

W. C. Winegard has completed an investigation on the structure formed by eutectic freezing in alloys and has confirmed the existence of a phenomenon predicted previously by Chalmers and Thall in their work on modification of aluminum-silicon alloys.

C. M. Bishop has completed a preliminary investigation of a new method of purification of certain metals based on the difference of composition of the liquid and the solid with which it is in equilibrium.

Faculty of Household Science

FOOD CHEMISTRY

Reported by Professor M. D. Smith

Surveys and several sections of research on the occurrence of fluorides in atmosphere, water, and milk are being concluded.

The analysis of the fluoride content of teeth in a high and low fluoride area has also been completed. The important aspect of biological absorption of fluorides from foods, especially infant foods containing bonemeal, is being approached in two distinct ways. One involves balance studies on infants and young women; the other deals with the fluoride content of teeth in children fed Pablum in infancy and those nourished on other cereals.

Some advances have been made on a semi-micro method for specific analysis of glucose in the presence of other sugars, and this technique is being applied to another problem in the Department which deals with degradation of starch fractions. The method is being used to follow acid hydrolysis of amylose separated from potato starch. The reducing sugar of the hydrolysate is being measured by the ferricyanide cerimetric method.

Mr. Sutton has completed investigation on the effects of some new anti-oxidents on the keeping properties of Canadian lard.

Miss Florence Smith has analysed a variety of chocolate products for calcium and oxalate content, viewing the results in relation to the effect on calcium absorption and the calcium requirement of a child per day.

Ontario College of Education

Reported by Professor J. A. Long

During the past year a good deal of the time of the staff of the Department of Educational Research has been devoted to analysing the data of the Red Cross school lunch study. This analysis has been completed and reports have been submitted to the directors of the sub-divisions of the study: biochemical, dental, physical measurements, medical symptoms, physical fitness, psychological and school achievement, home dietary, absenteeism. This school meal study is probably the most comprehensive experiment of its sort ever undertaken.

The teacher prediction study has been carried over a fifth year and is drawing to a close. This study has involved, each year, an examination of the student body of the College of Education with a view to discovering the relation between

success in teaching and the qualities which might be expected to determine that success. Secondary school teaching would benefit greatly and much wasted effort and needless suffering be avoided if prediction of success were so reliable as to make selective admission to the College of Education practicable in a thorough-going manner. The results of the study are not encouraging. Less easily assessable qualities such as personality, human understanding, and leadership weigh so preponderantly in success that more readily measurable variables such as intelligence and scholarship become matters of secondary importance. It should be remembered in this connection, however, that all who seek admission to the College possess the intelligence and scholarship implied by an Arts degree or its equivalent: none are really dull or uninformed.

Except for extensive statistical work undertaken for the provincial Department of Education, the time not devoted to the above two studies was given, for the most part, to a wide variety of projects in the field of test construction, revision, and standardization.

The supervisory strength of the Department continues to be seriously weakened by the absence of Dr. R. W. B. Jackson and Mr. E. B. Rideout with the Royal Commission on Education.

Four doctorate theses came from the College this year: J. A. Keddy, "Selection of candidates for entrance to the College of Education"; W. D. E. Matthews, "The history of the religious factors in Ontario elementary education"; K. R. Willis, "Pupil-participation in the activities of the secondary school"; A. C. Wilson, "A plan for evaluating the adequacy of city school systems."

Faculty of Dentistry

Reported by Dean R. G. Ellis

Research Projects by Members of the Teaching Staff

Professor Harold K. Box continued his research in the field of Periodontology. The results of his recent work on the histopathology and significance of the gingival clefts and associated tracts were published during the session.

Dr. J. Fletcher, in the Department of Dental Materials and Technology, continued his investigations into the accuracy of various filling materials.

Professor H. A. Hunter reported the results of studies on the effects of protein deficiencies on the dental tissues of rats. Dr. Hunter is proceeding with investigations on treatment of the dental pulp, and a study of the development of the epithelial attachment of the teeth.

Professor J. B. Macdonald is engaged in a study of experimental fusospirochetal infection and other phases of the importance of the bacterial flora of the mouth in dental disease.

Professor Robert E. Moyers has reported on his investigations on the electrical changes that take place in the muscles of mastication during function. This study won for Dr. Moyers the annual prize of the American Association of Orthodontists. A further study on the measurement of the physiologic forces in the mouth is progressing favourably.

Postgraduate and Graduate Student Research

Under the direction of Professor Harold K. Box

A long-range study on "The experimental production of dental caries *in vitro*" undertaken by Dr. R. A. Hugill has produced promising results. The mechanism developed in this project will now be used as an instrument to test protective substances in the control of dental caries.

Under the direction of Professor M. A. Cox

Dr. P. Takahashi has continued his investigation on "The use of sodium fluoride in caries control."

Under the direction of Professor R. G. Ellis

Dr. A. B. Hord has completed studies on the effect of the topical application of sodium fluoride on the enamel surface micro-hardness of vital teeth and on the calcium fluoride content of vital teeth treated topically with sodium fluoride. Reports on both these projects have been submitted to the International Association for Dental Research.

Under the direction of Professor R. J. Godfrey

Dr. C. H. Moses has continued his studies of the temporo-mandibular articulation.

Under the direction of Professor Robert E. Moyers

Dr. Robert Lo studied the normal sequence of eruption of the permanent dentition, and related the results to the problem of malocclusion.

Under the direction of Professor C. H. M. Williams

Dr. Robert Brown investigated the significance of the area of roots of teeth in their relationship to their support. Dr. Margaret Currie is evaluating the use of ionic medication as a means of tissue sterilization. Dr. D. G. Watt has made a very significant contribution to dental science in his study of the effects of the physical consistency of food on the supporting structures of the teeth. Dr. Charlotte Whitney investigated the problem of decalcification of teeth caused by food products containing citric acid.

School of Law

Reported by Dean C. A. Wright

Professor Bora Laskin has undertaken a study of the Supreme Court of Canada, its personnel, jurisdiction, and administration. Professor John Willis is investigating the problem of averaging income for the Canadian Tax Foundation. Professor F. E. LaBrie has completed his study on the meaning of income in the law of income tax and is now preparing it for publication. Professor J. Finkelman is continuing the preparation of a book on labour relations. Under the direction of Professor Willis, Mr. Carl H. Morawetz has concluded his study of compensatory payments in the law of income tax. Mr. J. F. Northey is concluding his study of the significance of the office of Governor-General in New Zealand, under the direction of Professor LaBrie.

School of Social Work

Reported by Professor H. M. Cassidy

Members of the faculty have been engaged in a number of research projects during the year, as follows.

Professor H. M. Cassidy, on leave of absence to serve as United Nations Adviser on Social Welfare to the Government of Egypt, studied the internal administration of the Egyptian Ministry of Social Affairs, with the assistance of an Egyptian staff, and prepared a substantial report for submission to the Egyptian Government through the United Nations, entitled "The Personnel and Training Problems of the Egyptian Ministry of Social Affairs."

Professor C. E. Hendry continued to direct the Capital District Recreation Planning Survey for Ottawa. A final field study is being completed during the summer of 1950.

Professor John S. Morgan spent part of the summer of 1949 and some time during the autumn months as associate director of a survey of the welfare services of New Brunswick, which was made for the provincial government under the auspices of the Canadian Welfare Council. He has also continued studies on the economic and social needs of the aged.

Professor Albert Rose acted throughout the year as director of research for the Metropolitan Problems Committee of the Civic Advisory Council of Toronto, which has been examining the problem of metropolitan government in the Toronto area. Two reports prepared by Professor Rose and the staff were published during the year, and work on the final report was nearly completed.

Professor Alan Klein made a sociological survey of Holy Blossom Temple in Toronto.

Candidates for the Master's degree completed the following research projects.

Under the direction of Miss Opal Boynton

Macfarlane, Miss M. A. Group work methods in a religious group.
Palmer, Miss M. J. Group work process in meetings of a board of directors.

Under the direction of Miss Ray Godfrey

O'Brien, M. T. Foster parents' responsibility.

Under the direction of Miss Doris Grotewohl

Milne, D. R. Volunteer leaders in scouting.

Under the direction of Miss M. E. Hatch

Nichols, Miss M. D. Adoption practices of the Toronto Children's Aid Society.

Under the direction of Professor S. K. Jaffary

Monson, Miss I. A. The social problems of General Hospital patients.
Price, G. C. Institutional care for the mentally ill in Toronto.

Under the direction of Professor A. F. Klein

Budd, W. "Scholarship" intake procedure of the Toronto Jewish Camp Council in 1950.
Garfield, G. P. Short-term staff training courses in social work.

Under the direction of Professor Leona Massoth

Boes, Miss L. F. The Ontario Charitable Institutions Act as it affects children's institutions.

Under the direction of Professor J. S. Morgan

Graham, L. B. Factors causing repeated placement applications by youths to the National Employment Service.

Under the direction of Miss Shulameth Rhinewine

Campbell, Mrs. C. Social work interviews preceding out-patient treatment at the Toronto Psychiatric Hospital.

Under the direction of Professor Albert Rose

Kileeg, J. Family backgrounds of boys and girls served by the Big Brother Movement and the Big Sister Association in Toronto.
Stephens, Miss M. E. Membership charges in recreation and informal education agencies.
Thomson, D. I. A. Effects on family life of chronic illness and unemployment relief, Toronto, 1950.
Warriner, W. L. Medical services for old age pensioners in Ontario.

Under the direction of Mr. M. I. Teicher

Browne, Mrs. H. M. The emotional problems arising from the presence of a cerebral palsied child in the home.
DeMarsh, Miss H. Services of the Toronto Psychiatric Hospital to the Toronto Children's Aid Society.

School of Hygiene

Reported by Professor R. D. Defries

A report of the research in the Department of Hygiene and Preventive Medicine under Dr. D. T. Fraser is given in the report of the Faculty of Medicine as this department is also a department of that faculty.

Under the direction of Professor A. M. Fallis, head of the sub-department of Parasitology, Dr. Ella Kuitunen completed a series of tests of the efficacy of "Diphenan" in the treatment of enterobiasis. Dr. Kuitunen continued, with the assistance of Mrs. Zoë Fleming, her studies of trichinosis among Arctic animals as well as in man. The parasites have been recovered from polar bears, foxes, and dogs in the Canadian Arctic. Serological tests on sera from Eskimos suggest a high incidence of infection in certain northern areas.

In the sub-department of Virus Infections, Drs. C. E. van Rooyen, A. J. Rhodes, and R. C. Parker have continued their extensive studies. Reference is made to these in the report from the Connaught Medical Research Laboratories.

In the Department of Physiological Hygiene, under the direction of Professor D. Y. Solandt, twelve projects in the field of biophysics, as applied to the problems of human ecology, have been carried forward during the past year. Dr. J. E. Goodwin and Mr. J. B. Gallagher have constructed special electronic equipment for studies of noise and its relation to fatigue and deafness. Electroencephalographic studies are also being carried on. Using various species of animals, Dr. H. N. MacFarland continued observations on the effects of chronic exposure to alumina and other fumes. Following his resignation, the histological studies of the many tissue specimens have been continued by Miss Nancie Evans and Mrs. Nellie Hornstein under the direction of Dr. Stanley Hartroft and of Professor C. C. Macklin of the University of Western Ontario. Mr. Stanley Freeman has been engaged in original studies on the evaluation of the olfactory sense and an olfactometer of unique design has been built and tested. Mr. Vernon B. Brooks, with the assistance of Mr. Keith MacMillan and Miss Bernice Grafstein, has studied the chemical sensitivity of the single myoneural junction using micrurgic techniques of phase microscopy. A biological preparation of original design has facilitated this work and the assay of regional acetylcholine and the associated enzyme mechanisms. Dr. Samuel Y. Shirley, Dr. William Callahan, and Mr. Phillip Rosen contributed to studies on the visual importance of the colour components of white light.

Professor Neil McKinnon, Head of the Department of Epidemiology and Biometrics, has extended his study of cancer mortality and reported further findings. Mr. D. B. W. Reid and Dr. D. R. E. MacLeod have continued the study of the similarity of rates of decline in tuberculosis mortality.

Professor P. J. Moloney, Head of the Department of Chemistry in Relation to Hygiene, and Dr. Edith M. Taylor have continued their work of the past three years on immunity in mice and guinea pigs treated with methylcholanthrene, a carcinogenic substance. Mr. Kenneth Geiger, under Dr. Moloney's direction, has continued an investigation of food utensil sanitation. During the past year he has made a critical survey of methods which might be used for the assay of quaternary ammonium compounds.

In the Department of Public Health Nutrition, under the direction of Professor E. W. McHenry, a large part of the research programme has been devoted to the fundamental problem of the relation of vitamin B_6 to protein metabolism. A basic investigation of the effects of vitamin B_6 deprivation on protein metabolism in rats has been conducted by Mr. J. R. Beaton, Dr. Roy Lau, and Miss R. M. Ballantyne. Indications were found that vitamin B_6 deprivation retards deamination but has no effect on transamination. Mr. James Barsky and Mrs. Joyce Cavan, using slices of liver from normal and from B_6-deprived rats found that B_6 insuffi-

ciency does not impair urea synthesis. In a co-operative study with the Department of Radiology, Dr. M. L. MacFarland completed an investigation of the effects of vitamin B_6 on X-ray damage in rats. The study has been extended to determine the effect of X-radiation on protein metabolism in humans, before and after vitamin B_6 therapy. A co-operative study on abnormalities of protein metabolism in pregnancy has been continued with the Department of Obstetrics and Gynaecology. Dr. W. J. McGanity has been a liaison between the departments and has been particularly active on the clinical aspects. Laboratory studies have been made by Dr. Lau, Messrs. Beaton and Barsky, and Mrs. Cavan. Observations on protein and vitamin B_6 intakes have been made by Miss Isobel Hutchison and Mrs. E. Esler. The Department has continued its field studies of nutritional conditions in population groups. Miss Ruth McKerrow and Dr. Lau determined blood phosphatase levels in two groups of Toronto school-children. A study of food intakes and of underlying sociological and economic factors was conducted by Miss Marion Penrice on one hundred children in health classes in a Toronto public school.

Efforts in nutrition education for the public are part of the departmental programme in public health nutrition. Several members of the staff have been particularly active in this way. Dr. McHenry has continued to serve as chairman and Miss Hutchison as secretary of the Ontario Interdepartmental Nutrition Committee. Responsibility for the issuance of a monthly bulletin and its circulation of 5,000 copies has been the work of the Department, largely through the efforts of Mrs. Lillian Shier, secretary of the Department.

In the Department of Hospital Administration, Dr. L. O. Bradley has been acting as Director of Studies for the Ontario Health Survey Committee. Miss Eugenie M. Stuart has initiated studies in audio-visual education as applied to hospital administration. The Department, in co-operation with the local community hospitals, has produced the first of a series of educational film strips on hospital procedure and techniques.

In the Department of Public Health Administration, under Professor R. D. Defries, Dr. Gordon Hatcher has been making an intensive study of medical care programmes as planned, or in operation, in a number of countries. Dr. C. E. A. Robinson has been studying public health educational methods and applying these in the East York—Leaside Health Unit.

Institute of Child Study

Reported by Professor W. E. Blatz

The regular research programme carried out by the staff of the Institute of Child Study falls into four areas.

A. Developmental Study

A longitudinal study of a group of approximately 300 graduates of the Nursery School is still in progress. The first publication of the findings in this study is now being prepared. This includes detailed analysis of the complete records of forty cases from early childhood to maturity.

B. Community Studies

A comprehensive study of one family is being carried out. At the present time data are being collected on the fourth generation.

C. Studies of Social Development

Regular records have this year been commenced on the social development of the children in attendance at the Nursery School. These records will be kept regularly and will become the basis for investigation of early social behaviour.

D. Studies of Security

The concept of psychological security as the basis of adequate mental health is under investigation at all age levels; in particular the Institute is investigating this concept as it applies at the childhood level.

Graduate students proceeding to an M.A. degree or a Ph.D. degree have participated in various ways in the above main areas of research. In particular, two students have completed theses dealing with social development; four students have completed theses in the security studies; three more security studies are in progress.

Connaught Medical Research Laboratories

Reported by Professor R. D. Defries

The research programme of the Connaught Medical Research Laboratories included fifty-two projects.

Immunology

Under the direction of Dr. P. J. Moloney, Mr. G. G. Waters has been determining the effect of certain proteolytic enzymes on the antigenicity of suspensions of *S. typhi.* Miss M. J. MacQuarrie has been attempting to obtain diphtheria and tetanus toxoids as chemical entities in crystalline form. Dr. Moloney, Mr. Waters, and Miss L. K. Jackson have submitted certain purified toxoids prepared in the laboratory by new methods for special clinical trials. With the assistance of Dr. Edith Taylor further work has been completed concerning the effect of tumour growth, as produced by a carcinogen, methylcholanthrene, in mice and guinea pigs, on the immunity response to special antigens. The observation that mice which had received methylcholanthrene showed a lowered immunity response has interesting implications in the field of immunology.

Under Dr. M. H. Brown further investigations were made pertaining to typhoid vaccine and to BCG vaccine in which work Miss G. F. Goodwin assisted. Dr. R. J. Wilson has been working on the development of a simplified medium for the growth of *H. pertussis.* Dr. Wilson, assisted by Mr. J. D. Wilson, has also commenced a fundamental study into the tiology of rheumatic fever and rheumatoid arthritis and allied conditions making use of bacteriological and immunological techniques.

Dr. Helen Plummer and Dr. J. M. Corkill have investigated the problems relating to the preparation of whooping cough vaccine. They have also been engaged in investigations of diphtheria and tetanus toxoid and in this work Miss E. M. Lang has given valuable assistance.

Dr. E. G. Kerslake is conducting three bacteriological investigations in the veterinary field. These relate to *Brucella abortis* vaccine and its preparation in dry form and to studies of other bacterial antigens. Dr. D. R. E. MacLeod, with Messrs. G. G. Waters and D. B. W. Reid, has been studying the lethal effect of diphtheria and other toxins on small animals. Dr. MacLeod has also reopened a fundamental research problem concerning the antibacterial immunity that can be produced by using killed organisms as antigens. Dr. D. A. Barnum made a study of bovine mastitis. In co-operation with the Ontario Veterinary College, Dr. J. F. Crawley has undertaken the study of epidemiology of bovine vaginitis and the investigation of certain virus diseases of fowl.

Dr. C. O. Siebenmann has made further progress in the fundamental studies in which he is engaged on the chemotherapy of tuberculosis. The study has centred in the use of streptomycin and para-aminosalicylic acid. The latter chemical has been prepared by Dr. Siebenmann by a new and economical method.

The Western Division of the Laboratories, located at the University of British Columbia, has continued research in the field of bacteriology under the direction of Dr. C. E. Dolman. Dr. L. E. Ranta continued his studies on the involved problem of artificial immunity against Salmonella infections, employing active and passive immunization techniques on mice. Dr. Ranta showed that cholera vaccine of turbidity roughly three times that now employed for human immunization could be prepared in a synthetic fluid medium. Dr. Dolman and Miss H. Chang have conducted studies with *Cl. botulinum.*

Glandular Extracts

Insulin research in its many aspects continues to be a major effort of the Laboratories. Dr. Gordon Romans, Dr. A. M. Fisher, Miss M. Jamieson, Dr. G. A. McVicar, and Dr. H. D. Bett are improving further the methods used in insulin extraction and purification. Improvements in quality and yield have been made.

Commencing in December, the Laboratories undertook to collect hog pituitary glands and to prepare ACTH. This work under Dr. G. A. McVicar, with the assistance of Miss K. E. Armbrust and Mr. M. Coval, has been progressing satisfactorily. Dr. A. M. Fisher undertook to arrange for the collection of all the hog pituitary glands available in Canada and has received splendid co-operation from the packing industry. The federal and provincial governments, through the public health research grants, are assisting financially in this work.

Further progress has been made by Dr. Bett and Miss Armbrust in the purification of the anti-pernicious anaemia factor in liver. Their work has been confirmed by clinical testing conducted under the direction of the Department of Therapeutics. The isolation of vitamin B_{12} from the liver extract and the determination of its presence in adequate amounts have also been accomplished.

The improvement of methods for the preparation of heparin has been achieved by Dr. Moloney and Dr. Edith Taylor and by Dr. A. F. Charles and Mr. G. D. Glass. Drs. Fisher and Charles are working on preparations of heparin that allow a prolonged action.

Dr. D. A. Scott has continued his fundamental studies in the purification of hormones of the posterior pituitary gland. Dr. D. M. Young and Miss A. H. Lewis continued work on the assay of glandular preparations.

Antibiotics

Dr. Moloney and Dr. A. L. Tosoni have extended their studies of the properties of prolonged-acting penicillin preparations in aqueous and oil suspension. They have made satisfactory preparations of aqueous procaine penicillin and of ethyl tyrosine penicillin in oil with aluminium monostearate. Further interesting work is being carried on in the preparation of new penicillin compounds.

Dr. Leone Farrell has been studying the relationship of streptomycin and vitamin B_{12}. Interesting findings have been recorded in the irradiation of *Penicillium chrysogenum* and the selection of strains producing larger yields of penicillin. Dr. Helen Plummer concluded her studies of subtilin. Dr. N. L. Macpherson, Mr. A. R. Lucas, and Miss H. M. G. Macmorine have continued investigations of problems relating to the production of penicillin.

Virus Infections

Dr. A. J. Rhodes and Miss M. G. Chapman have continued their studies of poliomyelitis, paying special attention to the interference phenomenon that can be demonstrated in hamsters when poliomyelitis virus LCM is inoculated intracerebrally and MM virus is given intraperitoneally four to seven days later. Dr. Rhodes and Miss E. M. Clark have studied neurotropic virus infections occurring in conjunction with poliomyelitis and established that Coxsackie virus occasioned infections in Ontario. Investigations of an outbreak of poliomyelitis occurring among

the Eskimos at Chesterfield Inlet were completed. Dr. Rhodes and Miss Clark have also made a careful study of the survival time of human poliomyelitis virus in river water and in urban sewage. This has involved a reinvestigation of the methods used for the isolation of the virus from sewage.

Dr. Rhodes and his associates were engaged on a problem concerning passive immunity in poliomyelitis, as part of the intensive investigations in this disease which are being supported by the National Foundation for Infantile Paralysis. Dr. Rhodes in conjunction with Dr. Howard McCart has been studying the aetiology of malignant granuloma.

Under the immediate direction of Dr. C. E. van Rooyen, Miss Clark has carried forward her work on the phage typing of *S. typhi.* Drs. van Rooyen, A. F. Graham, R. P. C. French, and Mr. S. F. Lesley have continued a fundamental study of the manner in which the virus particle obtains its nourishment from the cell, making use of radioactive isotopes of phosphorus as tracer substances. During the year it was possible to extend the scope of the investigation through funds provided by the William B. Boyd Memorial Research Fund. Dr. van Rooyen has further pursued his search for anti-viral substances and his work on the isolation of new strains of influenza virus. During the year Dr. van Rooyen and Dr. Crawley carried on investigations as a co-operative project with the Ontario Veterinary College in the study of virus infections of animals. The studies included fowl pox, fowl laryngotracheitis, canine distemper, and bovine vaginitis.

Dr. R. C. Parker, in association with Dr. J. F. Morgan and Miss H. J. Morton, has made further progress in an attempt to develop a chemically defined nutritive medium for the growth of animal cells in tissue culture. Some 392 synthetic mixtures have now been devised and tested on approximately 5,700 roller tube cultures of chick embryo mesenchyme tissue.

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REPORT OF THE REGISTRAR

I beg to submit the following statistics for the year ending June 30, 1950:

I. Distribution of the staff of the University and University College (furnished by the Chief Accountant).

II. Distribution of the staffs of the federated Arts colleges (furnished by the registrars of the colleges).

III. Registration of students by faculties and years.

IV. Enrolment in the Arts colleges (furnished by the registrars of the colleges).

V. Enrolment in the University departments in Arts (furnished by the departments).

VI. Registration in courses in the Faculty of Arts.

VII. Registration in courses in the School of Graduate Studies (furnished by the Secretary of the School).

VIII. Results of annual examinations (furnished by the secretaries of the faculties and schools).

IX. Admission to degrees.

X. Admission to diplomas and certificates.

XI. Geographical distribution of students (furnished by the secretaries of the faculties and schools).

J. C. Evans

I. DISTRIBUTION OF THE STAFF OF THE UNIVERSITY AND UNIVERSITY COLLEGE

	Professors	Associate Professors	Assistant Professors	Associates	Lecturers	Directors	Assistant Directors	Instructors	Visiting Professors	Other Sessional Appointments	Totals
University (Faculty of Arts)	53	39	53	..	58	2*eg*	..	26	9	254	494
University College	12	14	6	..	14	..	..	2	3	21	72
Faculty of Medicine	25	26	39	57	9	3*eg*	..	1	..	169	329
Faculty of Applied Science	17	13	25	..	25*c*	..	..	73	..	145	298
Faculty of Household Science	1	2	2	..	5	..	..	1	..	5	16
Ontario College of Education	7	14	3	..	14	4*eg*	..	22	..	...	64
Faculty of Forestry	3	..	2	..	1	..	..	1	..	...	7
Faculty of Music	2	..	3	..	2	..	..	..	..	5	12
Faculty of Dentistry	10	10*b*	6	32	..	1*e*	..	..	..	18	77
School of Law	5	..	1	..	1	..	..	..	..	1	8
School of Architecture	2	..	5	..	14	1*e*	..	6	..	17	45
School of Physical and Health Education	..	..	..	..	2*b*	1*b*	..	..	..	1	4
School of Social Work	2	3	2	..	1	1*e*	..	..	..	..	9
School of Nursing	1	..	2	..	8	1*e*	..	5	..	..	17
School of Hygiene	8	4	1	2	..	2*g*	..	..	..	..	17
Institute of Child Study	..	..	..	..	3	1*d*	2*d*	2	..	8	16
Institute of Industrial Relations	..	..	..	..	..	1*d*	..	..	..	9	10
Totals	148	125	150	91	157	18	2	139	12	653	1,495

a 1 also in Faculty of Arts
b 1 also in Faculty of Medicine
c 1 also in School of Hygiene
d also in Faculty of Arts
e also Professor
f also Associate Professor
g also Assistant Professor

II. DISTRIBUTION OF THE STAFFS OF THE FEDERATED ARTS COLLEGES

	Victoria College	Trinity College	St. Michael's College
Professors	14	9	15
Associate Professors	4	7	2
Assistant Professors	6	2	2
Lecturers	9	8	12
Instructors	1	1	..
Fellows	1	5	..
Readers	7	..	..
Special Lecturers	3	1	..
Totals	45	33	31

III. REGISTRATION OF STUDENTS

The students registered in the University, in colleges, faculties, and schools in the session 1949-50 were distributed as follows:

	Men	Women	Total	Ex-service Students
Faculty of Arts	3,715	2,323	6,038	1,022
University College	1,150	727	1,877	
Victoria College	987	777	1,764	
Trinity College	299	244	543	
St. Michael's College	425	191	616	
University of Toronto	854	384	1,238	
Faculty of Medicine	1,042	100	1,142	392
Faculty of Applied Science and Engineering	2,897	7	2,904	1,585
Faculty of Household Science	....	15	15	....
Ontario College of Education	498	216	714	220
Faculty of Forestry	251	...	251	143
Faculty of Music	70	39	109	25
School of Graduate Studies	1,331	256	1,587	445
Faculty of Dentistry	545	31	576	334
School of Law	82	6	88	35
School of Architecture	228	6	234	122
School of Physical and Health Education	82	113	195	36
School of Social Work	56	89	145	44
School of Nursing	....	296	296	27
School of Hygiene	37	1	38	17
Institute of Child Study	....	24	24	2
Department of University Extension	231	253	484	34
GRAND TOTAL	11,065	3,775	14,840	4,483

The figures may be further analysed as follows:

Faculty of Arts

University College

	Men	Women	Total
First year	299	217	516
Second year	261	196	457
Third year	370	188	558
Fourth year	204	115	319
Occasional students	16	11	27
	1,150	727	1,877

Victoria College

	Men	Women	Total
First year	257	200	457
Second year	243	213	456
Third year	304	231	535
Fourth year	172	128	300
Occasional students	11	5	16
	987	777	1,764

Trinity College

	Men	Women	Total
First year	75	68	143
Second year	96	75	171
Third year	84	66	150
Fourth year	41	29	70
Occasional students	3	6	9
	299	244	543

St. Michael's College

	Men	Women	Total
First year	123	49	172
Second year	137	77	214
Third year	131	51	182
Fourth year	31	12	43
Occasional students	3	2	5
	425	191	616

University of Toronto

	Men	Women	Total
Pass Course for Teachers	370	333	703
	Men	Women	Total
Summer session:			
Regular students	106	106	212
Occasional students	52	21	73
Teachers' classes:			
Regular students	240	218	458
Occasional students	38	38	76
Registered twice	66	50	116
Occasional Students:			
Ontario College of Pharmacy			
Diploma course:			
First year	119	8	127
Second year	104	21	125
Degree course:			
First year	41	9	50
Second year	21	2	23
College of Optometry	172	2	174
Other students	27	9	36
	854	384	1,238

Faculty of Medicine

	Men	Women	Total
First premedical year	133	14	147
Second premedical year	133	13	146
First medical year	158	7	165
Second medical year	161	10	171
Third medical year	149	26	175
Fourth medical year	152	8	160
Degree of Bachelor of Science (Med.)	8	1	9
Diploma in Art as Applied to Medicine	2	8	10
Diploma in Industrial Hygiene	1	..	1
Diploma in Psychiatry	17	1	18
Diploma in Public Health	25	1	26
Diploma in Radiology	3	..	3
Graduate students	100	11	111
	1,042	100	1,142

Faculty of Applied Science and Engineering

	Men	Women	Total
First year	442	1	443
Second year	542	4	546
Third year	837	1	838
Fourth year	1,071	1	1,072
Colonial surveyors	5	..	5
	2,897	7	2,904

Faculty of Household Science

	Men	Women	Total
First year	..	4	4
Second year	..	7	7
Third year	..	3	3
Fourth year	..	1	1
	..	15	15

Ontario College of Education

	Men	Women	Total
*Teachers' course	293	134	427
†Librarians' course	13	49	62
‡Degree of Bachelor of Pedagogy	192	33	225
	498	216	714

*There were also 75 persons who were exempted from attendance and admitted to the final examinations.

†There were also 4 persons who were exempted from attendance and admitted to the final examinations.

‡There were also 28 persons who were exempted from attendance and admitted to the final examinations.

Faculty of Forestry

	Men	Women	Total
First year	43	..	43
Second year	55	..	55
Third year	64	..	64
Fourth year	89	..	89
	251	..	251

Faculty of Music

	Men	Women	Total
General Music:			
First year	2	1	3
Second year	12	3	15
Third year	11	4	15
School Music:			
First year	13	12	25
Second year	20	10	30
Third year	12	9	21
	70	39	109

School of Graduate Studies

	Men	Women	Total
Degree of Doctor of Philosophy	317	16	333
Degree of Master of Arts	506	86	592
Degree of Master of Commerce	61	..	61
Degree of Master of Surgery	34	..	34
Degree of Master of Applied Science	110	..	110
Degree of Mechanical Engineer	1	..	1
Degree of Metallurgical Engineer	1	..	1
Degree of Doctor of Pedagogy	23	1	24
Degree of Master of the Science of Forestry	2	..	2
Degree of Doctor of Music	10	..	10
Degree of Master of Science in Dentistry	4	..	4
Degree of Doctor Juris	3	..	3
Degree of Master of Laws	1	1	2
Degree of Master of Science in Agriculture	38	3	41
Degree of Doctor of Veterinary Science	2	..	2
Degree of Master of Social Work	37	11	48
Graduate students	181	138	319
	1,331	256	1,587

Faculty of Dentistry

	Men	Women	Total
Predental year	60	..	60
First year	73	3	76
Second year	80	..	80
Combined second and third year	2	..	2
Third year	150	..	150
Fourth year	168	2	170
Degree of Bachelor of Science (Dent.)	3	..	3
Diploma in Dental Nursing	...	25	25
Diploma in Dental Public Health	6	..	6
Diploma in Periodontology	...	1	1
Occasional students	3	..	3
	545	31	576

School of Law

	Men	Women	Total
First year	38	1	39
Second year	12	..	12
Fifth year (old combined course):			
Full-time students	11	1	12
Part-time students	21	4	25
	82	6	88

School of Architecture

	Men	Women	Total
First year	35	1	36
Second year	49	2	51
Third year	42	..	42
Fourth year	50	1	51
Fifth year	52	2	54
	228	6	234

School of Physical and Health Education

	Men	Women	Total
First year	22	48	70
Second year	16	26	42
Third year	42	38	80
Occasional students	2	1	3
	82	113	195

School of Social Work

	Men	Women	Total
Degree of Bachelor of Social Work:			
Full-time students	42	43	85
Part-time students	1	6	7
Degree of Master of Social Work:			
*Full-time students	28	17	45
†Part-time students	3	12	15
Special students:			
Full-time students	..	3	3
Part-time students	13	37	50
	56	89	145

*These students were registered in the School of Graduate Studies; they did not complete their year's work until the end of the summer term, August, 1950.

†These students were registered in the School of Graduate Studies; two of them completed their work and received the Master of Social Work degree at the June Convocation, 1950.

School of Nursing*

	Men	Women	Total
Degree of Bachelor of Science in Nursing:			
First year	..	21	21
Second year	..	18	18
Third year	..	15	15
Fourth year	..	19	19
Supplementary year	..	3	3
Graduate certificate courses:			
Clinical Supervision	..	42	42
Nursing Education and Nursing Administration: General	..	31	31
Nursing Education and Nursing Administration: Advanced	..	1	1
Public Health Nursing: General	..	93	93
Public Health Nursing: Advanced	..	19	19
Occasional students	..	34	34
	..	296	296

*There were also 160 women enrolled for brief special or refresher courses.

School of Hygiene

	Men	Women	Total
Diploma in Hospital Administration	23	..	23
Diploma in Veterinary Public Health	12	..	12
Certificate in Public Health	2	1	3
	37	1	38

Institute of Child Study

	Men	Women	Total
Diploma in Child Study	..	23	23
Occasional students	..	1	1
	..	24	24

Department of University Extension*

	Men	Women	Tota
Diploma in Occupational Therapy:			
First year	...	51	51
Second year	...	32	32
Third year	...	55	55
Diploma in Physical Therapy:			
First year	...	22	22
Second year	...	14	14
Third year	...	21	21
Teacher's Certificate in Physical Therapy:			
Second year	...	1	1
Certificate in Business (evenings)	124	14	138
Certificate in Institutional Management:			
First year	62	31	93
Second year	45	12	57
Totals	231	253	484

*There were also 10,016 persons registered in courses which are referred to in detail in the report of the Director of University Extension.

IV. ENROLMENT IN THE ARTS COLLEGES

University College

	English	Ethics	French	German	German (Sc.)	Greek	Greek and Roman History	Latin	Oriental History	Oriental Languages	Oriental Literature
First Year											
Pass	305	60	130	23	..	9	31	5	8	18	104
Honour	98	..	112	11	..	28‡	28	1	3	5	...
Second Year											
Pass	252	109	133	7	76	6	20	3	17	11	93
Honour	27	15	33	11	..	6	..	19‡	4	6	...
Third Year											
Pass	209	208	54	7	8	4	49	4	28	7	108
General	15	...	4	..	..	..	..	..	2	..	...
Honour	39	17	36	11	..	31‡	20	5	2	12	...
Fourth Year											
Pass	28	62	...	..	15	..	34	..	..	..	71
General	9	...	3	2	..	..	13	..	20	..	...
Honour	30	34	21	6	..	5	23	15‡	2	8	...
Totals											
Pass	794	439	317	37	99	19	134	12	53	36	376
General	24	...	7	2	..	..	13	..	22	..	...
Honour	194	66	202	39	..	70	71	40	11	31	...
Teachers' Classes	210*	...	23	12	..	..	...	..	..	..	...
Graduate Studies	85	4	14	14	..	2	2	7	..	7	...
Other faculties	1,050†	...	163	330	..	..	...	..	22	..	...
Grand Total	2,357	509	726	434	99	91	220	59	108	74	376

*Includes summer session of 1949 (87) and Teachers' Classes of 1949-50 (123).
†817 were given instruction in University College; 233 in other faculties or the Department of University Extension.
‡Including figures for Greek and Latin Literature.

Victoria College

	English	Ethics	French	German	German (Sc.)	Greek	Greek and Roman History	Latin	Oriental History	Oriental Languages	Religious Knowledge
First Year											
Pass	211	66	103	4	..	9	38	4	7	5	110
Honour	95	...	132	23	..	5	33	12	4	..	...
Second Year											
Pass	204	109	99	13	16	2	23	4	7	3	129
Honour	48	14	41	17	..	1	..	7	..	..	...
Third Year											
Pass	175	218	81	7	..	5	51	3	16	..	121
General	16	16	7	2	..	..	2	..	3	1	...
Honour	41	15	40	12	..	..	16	7	2	2	...
Fourth Year											
Pass	29	30	...	1	..	..	28	..	..	..	99
General	14	5	5	2	..	..	1	..	7	..	...
Honour	48	17	43	12	..	2	43	4	2	2	...
Totals											
Pass	619	423	283	25	16	16	140	11	30	8	459
General	30	21	12	4	..	..	3	..	10	1	...
Honour	232	46	256	64	..	8	92	30	8	4	...
Graduate Studies	47	19	6	5	..	..	...	..	..	5	...
Grand Total	928	509	557	98	16	24	235	41	48	18	459

Trinity College

	English	Ethics	French	German	Greek	Greek and Roman History	Latin	Oriental History	Oriental Languages	Religious Knowledge
First Year										
Pass	55	16	29	3	4	8	1	1	1	52
Honour	52	..	53	5	3	14	7	..	..	80
Second Year										
Pass	54	40	39	8	2	..	..	3	2	62
Honour	30	12	23	8	2	..	6	..	..	96
Third Year										
Pass	46	45	22	..	..	3	1	2	..	59
General	17	..	2	..	..	..	..	..	..	15
Honour	23	10	15	1	2	9	4	..	1	68
Fourth Year										
Pass	..	..	..	..	..	..	..	..	..	..
General	5	..	2	..	..	..	..	..	..	14
Honour	16	10	9	3	2	10	1	1	1	50
Totals										
Pass	155	101	90	11	6	11	2	6	3	173
General	22	...	4	..	..	..	..	..	..	29
Honour	121	32	100	17	9	33	18	1	2	294
Grand Total	298	133	194	28	15	44	20	7	5	496

St. Michael's College

	English	Ethics	French	German	German (Sc.)	Greek	Greek and Roman History	Latin	Philosophy	Religious Knowledge
First Year										
Pass	91	77	76	2	..	11	21	53	63	73
Honour	28	8	12	1	..	..	5	10	35	42
Second Year										
Pass	123	115	81	5	3	3	2	45	89	132
Honour	20	10	13	1	..	..	..	2	32	37
Third Year										
Pass	114	110	68	2	2	3	3	28	49	115
Honour	14	5	10	1	..	..	..	..	36	23
Fourth Year										
Honour	9	1	10	1	..	..	6	..	36	27
Totals										
Pass	328	302	225	9	5	17	26	126	201	320
Honour	71	24	45	4	..	..	11	12	139	129
Grand Total	399	326	270	13	5	17	37	138	340	449

V. ENROLMENT IN THE UNIVERSITY DEPARTMENTS IN ARTS

Anthropology

	Pass	Pass and Honour	Honour
Faculty of Arts			
First year	49	159	35
Second year	179	...	92
Third year	49	25	9
Fourth year	...	130	24
Occasional students	...	...	1
Faculty of Medicine			
First premedical year	...	...	103
Second premedical year	...	...	95
School of Graduate Studies	...	...	41
School of Law	1	...	...
Totals	278	314	400

Number of students registered—992

Art and Archaeology

	Pass	Pass and Honour	Honour
Faculty of Arts			
First Year	33	..	33
Second year	66	37	28
Third year	51	46	39
Fourth year	..	36	35
Teachers' Classes	27	..	..
Occasional students	..	..	4
School of Graduate Studies	..	..	11
Faculty of Dentistry			
Predental year	14	..	..
School of Architecture			
Fourth year	..	..	51
Totals	191	119	201

Number of students registered—511

Astronomy

	Pass	Honour	Laboratory
Faculty of Arts			
First year	43	..	43
Second year	8	45	8
Third year	4	17	21
Fourth year	..	2	2
School of Graduate Studies	..	5	5
Totals	55	69	79

Number of students registered—124

Botany

	Lecture Courses			Laboratory Courses	
	1 or 2 or 3 hours		4 or 5 or 6 hours		
	Pass	Honour	Honour	Pass	Honour
Faculty of Arts					
First year	55	117	..	55	117
Second year	91	19	..	22	9
Third year	25	1	15	25	16
Fourth year	..	43	2	..	27
Teachers' Classes	13	...	..	13	...
Faculty of Medicine					
First premedical year	..	23	..	..	23
Second premedical year	..	22	..	..	22
Faculty of Household Science					
First year	..	4	..	..	4
Faculty of Forestry					
First year	..	41	..	..	41
Fourth year	..	90	..	..	90
School of Graduate Studies	..	54	..	..	45
Ontario College of Pharmacy					
First year	..	173	..	..	173
Second year	..	144	..	..	144
Totals	184	731	17	115	711

Number of students registered—932

Chemistry

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts				
First year	204	...	191	321
Second year	95	...	99	99
Third year	63	...	63	63
Fourth year	4	...	22	22
Occasional students	...	...	3	2
Faculty of Medicine				
First premedical year	...	146	...	146
Second premedical year	...	145	...	145
Faculty of Applied Science and Engineering				
First year	...	104	...	...
Second year	...	108	...	...
Third year	...	172	...	172
Faculty of Household Science				
First year	...	7	...	7
Second year	...	6	...	6
School of Graduate Studies	...	...	99	40
Faculty of Dentistry				
Predental year	...	62	...	62
First year	...	75	...	75
School of Physical and Health Education				
First year	68	...	...	68
Second year	42	...	...	...
School of Nursing				
First year	19	...	...	19
Ontario College of Pharmacy				
Two-year course				
First year	...	125	...	125
Second year	...	125	...	125
Four-year course				
First year	...	48	...	48
Second year	...	23	...	23
Totals	495	1,146	477	1,568

Number of students registered—2,118

East Asiatic Studies

	Pass	Pass and Honour	Honour
Faculty of Arts			
First year	1	..	1
Third year	3	..	1
School of Graduate Studies	..	..	2
Totals	4	..	4

Number of students registered—8

Food Chemistry
(Faculty of Household Science)

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts				
Second year	25	..	5	30
Third year	32	10	40	82
Fourth year	..	12	47	59
Occasional students	..	..	1	1
Faculty of Household Science				
Second year	..	7	..	7
Third year	3	..	..	3
Fourth year	..	..	1	1
School of Graduate Studies	..	..	11	10
Totals	60	29	105	193

Number of students registered—194

Geography

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts				
First year	214	32	10	224
Second year	98	23	23	121
Third year	91	21	14	91
Fourth year	...	...	11	...
Teachers' Classes	35	...	..	...
Occasional students	5	...	..	...
School of Graduate Studies	...	...	25	...
School of Physical and Health Education				
Third year	27	...	..	...
Miscellaneous				
Ontario College of Education	...	261	..	...
Totals	470	337	83	436

Number of students registered—890

Geological Sciences

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts				
First year	40	15	76	40
Second year	72	..	30	102
Third year	13	..	22	30
Fourth year	...	..	20	20
Teachers' Classes	58	..	..	58
Occasional students	2	..	..	2
Faculty of Applied Science and Engineering				
First year	25	..	..	25
Second year	25	..	..	25
Third year	199	..	..	189
Fourth year	112	..	..	112
Faculty of Forestry				
Second year	55	..	..	55
Third year	64	..	..	...
School of Graduate Studies	...	..	107	107
School of Architecture				
Fourth year	51	..	..	51
Totals	716	15	255	816

Number of students registered—986

History

	Lecture Courses			
	1 or 2 or 3 hours		4 or 5 or 6 hours	7 or more hours
	Pass	Honour	Honour	Honour
Faculty of Arts				
First year	110	205	..	..
Second year	176	92	18	47
Third year	212	44	13	47
Fourth year	32	24	17	58
Teachers' Classes	68	...	..	..
Occasional students	6	2	1	..
Faculty of Medicine				
First premedical year	19	...	..	..
Second premedical year	..	16	..	..
Faculty of Applied Science and Engineering				
Third year	839	...	..	..
School of Graduate Studies	...	...	..	96
School of Architecture				
Third year	43	...	..	..
School of Nursing	41	...	..	..
Totals	1,546	383	49	248

Number of students registered—2,226

Household Science
(Faculty of Household Science)

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts				
First year	..	..	43	33
Second year	13	..	54	67
Third year	11	8	26	45
Fourth year	..	5	44	49
Faculty of Household Science				
First year	..	3	..	..
Second year	..	7	..	7
Third year	3	..	..	3
Fourth year	..	1	..	1
School of Graduate Studies	4	..	..	4
Totals	31	24	167	209

Number of students registered—222

Italian, Spanish, and Portuguese

	Italian		Spanish		Portuguese	
	Pass	Honour	Pass	Honour	Pass	Honour
Faculty of Arts						
First year	37	26	160	173	4	12
Second year	17	8	140	40	..	..
Third year	6	3	110	25	..	..
Fourth year	..	3	7	34	..	..
School of Graduate Studies	..	4	...	9	..	..
Totals	60	44	417	281	4	12

Number of students registered—818

Law
(School of Law)

	Pass	Honour
Faculty of Arts		
First year	..	112
Second year	..	37
Third year	..	29
Fourth year	..	23
Faculty of Forestry		
Third year	64	...
School of Graduate Studies	..	35
School of Law	..	88
School of Social Work		
B.S.W.	26	...
College of Optometry of Ontario	84	...
Totals	174	324

Number of students registered—498

Mathematics

	Lecture Courses					Laboratory Courses
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours	
	Pass	Honour	Pass	Honour	Honour	Pass
Faculty of Arts						
First year	110	1	15	105	75	...
Second year	91	59	13	55	29	...
Third year	73	55	13	43	24	...
Fourth year	21	20	..	2	16	...
Teachers' Classes	4	..	..	...	..	...
Occasional students	...	..	..	2	..	...
Faculty of Medicine						
First premedical year	11	..	..	...	..	...
Second premedical year	21	..	..	...	..	...
Faculty of Applied Science and Engineering						
First year	399	..	40	...	..	399
Second year	470	..	49	...	..	470
Third year	139	..	79	...	..	...
Fourth year	125	..	..	...	..	...
Faculty of Music						
First year	4	..	..	...	..	...
School of Graduate Studies	...	6	..	14	29	...
Faculty of Dentistry						
Predental year	30	..	..	...	..	...
School of Architecture						
First year	36	..	..	...	..	...
College of Optometry of Ontario	...	33	..	...	..	...
Totals	1,534	174	209	221	173	869

Number of students registered—2,311

Military Studies

	Pass	Pass and Honour	Honour
Faculty of Arts			
First year	16	..	58
Second year	8	..	27
Third year	13	..	11
Fourth year	..	4	11
Totals	37	4	107

Number of students registered—148

Music
(Faculty of Music)

	Lecture Courses			
	1 or 2 or 3 hours		4 or 5 or 6 hours	7 or more hours
	Pass	Honour	Honour	Honour
Faculty of Arts				
First year	4	..	7	..
Second year	6	..	4	..
Third year	..	..	5	..
Fourth year	..	..	9	..
Faculty of Music				
First year	..	3	..	25
Second year	..	15	..	30
Third year	..	15	..	21
Totals	10	33	25	76

Number of students registered—144

Philosophy

	Pass	Honour
Faculty of Arts		
First year	170	240
Second year	182	332
Third year	281	341
Fourth year	73	354
Teachers' Classes	35	....
Occasional students	5	....
Faculty of Medicine		
First premedical year	...	128
Second premedical year	...	128
Faculty of Applied Science and Engineering		
Fourth year	...	1,140
School of Graduate Studies	...	115
School of Architecture		
Fifth year	...	50
Department of University Extension	150	....
Workers' Educational Association	35	....
R.C.A.F. Staff College	40	....
Totals	971	2,828

Number of students registered—3,799

Physics

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts				
First year	160	...	194	280
Second year	36	...	85	114
Third year	47	4	86	96
Fourth year	...	14	48	45
Teachers' Classes	12	...	6	18
Occasional students	...	...	4	4
Faculty of Medicine				
First premedical year	...	151	...	151
Diploma in Radiology	...	3	...	3
Faculty of Applied Science and Engineering				
First year	...	...	49	49
Second year	...	...	49	49
Third year	...	...	56	56
Fourth year	...	...	88	88
Faculty of Household Science				
First year	...	6	...	6
Fourth year	...	1	...	1
Faculty of Forestry				
First year	...	39	...	39
Faculty of Music				
Second year	...	21	...	21
School of Graduate Studies	...	...	83	11
Faculty of Dentistry				
Predental year	...	60	...	60
School of Physical and Health Education				
First year	68	...	...	68
Ontario College of Pharmacy				
First year	...	23	...	23
College of Optometry of Ontario				
First year	...	36	...	36
Second year	...	45	...	45
Department of University Extension				
Physical Therapy				
First year	23	...	...	23
X-ray technicians	19	...	...	19
Totals	365	403	748	1,305

Number of students registered—1,516

Political Economy

	Lecture Courses					
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours	
	Pass	Honour	Pass	Honour	Pass	Honour
Faculty of Arts						
First year	256	124	95	215	8	...
Second year	305	66	192	7	35	153
Third year	243	32	230	...	88	113
Fourth year	90	97	...	...	..	158
Occasional students	3	5	6	...	..	...
Faculty of Applied Science and Engineering						
First year	...	440	...	...	..	...
Second year	...	548	...	...	..	...
Third year	...	770	...	73	..	...
Fourth year	...	989	...	85	..	...
Faculty of Forestry						
Third year	64	...	...	...	..	...
School of Graduate Studies	...	58	...	5	..	148
School of Architecture						
Second year	...	55	...	...	..	...
Third year	...	43	...	...	..	...
Fourth year	...	51	...	...	..	...
School of Physical and Health Education						
First year	11	...	...	...	..	...
School of Nursing	...	...	6	...	..	...
School of Hygiene	...	...	...	11	..	...
College of Optometry of Ontario	81	...	...	...	..	...
Totals	1,053	3,278	529	396	131	572

Number of students registered—5,812*

*This does not include 147 honour students who were also registered in pass subjects.

Psychology

	Lecture Courses					Laboratory Courses	
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours		
	Pass	Honour	Pass	Honour	Honour	Pass	Honour
Faculty of Arts							
First year	203	101	..	..	...	..	...
Second year	337	87	..	..	22	40	22
Third year	448	86	..	..	29	..	29
Fourth year	...	86	..	..	41	..	41
Teachers' Classes	278	...	..	..	...	..	...
Occasional students	6	...	..	..	...	..	...
Faculty of Medicine							
Second premedical year	146	...	..	..	...	..	...
Second medical year	171	...	..	..	...	..	...
Faculty of Applied Science and Engineering							
Fourth year	86	...	..	..	...	..	...
School of Graduate Studies	...	21	..	4	135	..	160
School of Physical and Health Education							
First year	70	...	..	..	...	..	...
Second year	42	...	..	..	...	..	...
Third year	27	...	..	..	...	..	...
School of Social Work							
B.S.W.	12	...	..	..	...	..	...
School of Nursing	133	...	..	..	...	..	...
School of Hygiene	8	...	..	..	...	..	...
Institute of Child Study	3	...	..	..	...	..	...
Department of University Extension							
Occupational Therapy	52	...	..	..	...	..	...
Physical Therapy	22	...	..	..	...	..	...
Radiography	15	...	..	..	...	..	...
Evening classes	336	...	..	..	...	..	...
Institutional Management	144	...	..	..	...	..	...
College of Optometry of Ontario							
First year	30	...	..	..	...	..	...
Second year	48	...	..	..	...	48	...
Totals	2,617	381	..	4	227	88	252

Number of students registered—3,229

Zoology

	Lecture Courses					Laboratory Courses	
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours		
	Pass	Honour	Pass	Honour	Honour	Pass	Honour
Faculty of Arts							
First year	130	124	..	..	..	130	124
Second year	193	45	..	..	..	129	45
Third year	171	40	..	..	..	171	50
Fourth year	...	46	..	15	..	...	29
Occasional students	...	3	..	..	..	...	3
Faculty of Medicine							
Second premedical year	...	147	..	..	..	...	147
Faculty of Household Science							
First year	...	5	..	..	..	...	5
Faculty of Forestry							
First year	...	41	..	..	..	...	41
Second year	...	89	..	..	..	...	...
Fourth year	...	49	..	..	..	...	49
School of Graduate Studies	...	106	..	..	..	...	106
Faculty of Dentistry							
Predental year	...	62	..	..	..	...	62
School of Physical and Health Education							
First year	...	68	..	..	..	...	68
School of Nursing	19	...	..	..	..	19	...
Ontario College of Pharmacy							
First year	...	49	..	..	..	...	49
College of Optometry of Ontario	...	38	..	..	..	...	38
Totals	513	912	..	15	..	449	816

Number of students registered—1,440

VI. REGISTRATION IN COURSES IN THE FACULTY OF ARTS

Courses	First Year					Second Year					Third Year					Fourth Year					Totals
	UC	VC	TC	MC	Total	UC	VC	TC	MC	Total	UC	VC	TC	MC	Total	UC	VC	TC	MC	Total	
Pass	232	174	53	122	581	245	233	65	165	708	310	289	61	144	804	...	...	..	..	...	2,093
General	...	...	..	...	...	...	...	..	...	...	28	24	14	5	71	47	43	14	5	109	180
Classics	1	2	2	2	7	2	1	2	...	5	3	...	2	...	5	3	1	1	..	5	22
East Asiatic Studies	1	...	..	...	1	...	...	..	...	...	...	...	..	...	...	...	...	..	..	...	1
Eng. Lang. & Lit.	18	15	6	4	43	11	17	9	6	43	16	21	9	5	51	14	19	9	5	47	184
Greek & Hebrew	...	...	..	...	...	2	...	..	...	2	...	...	..	...	...	...	1	..	..	1	3
Hebrew (P. or G. & R.H. option)	...	...	..	...	...	1	...	..	...	1	...	2	..	...	2	...	...	..	..	...	3
Latin & English	...	1	1	1	3	...	...	1	...	1	1	...	1	...	2	...	...	..	..	...	6
Latin (Fr. or Gk. option):																					
Div. I	...	3	1	2	6	...	...	..	...	...	1	4	..	...	5	2	3	..	..	5	16
Mod. Hist. & Mod. Lang.	8	9	2	...	19	6	7	4	...	17	3	7	3	...	13	5	9	3	..	17	66
Mod. Lang. & Lit.	15	23	6	2	46	13	17	11	12	53	21	17	5	5	48	13	21	2	3	39	186
Oriental Lang.	1	...	..	...	1	1	...	..	...	1	2	...	1	...	3	1	1	..	..	2	7
Art & Archaeology	7	11	3	...	21	9	1	4	2	16	2	4	5	...	11	12	10	3	1	26	74
Law	...	...	..	...	...	21	9	4	2	36	...	...	1	...	1	18	4	..	1	23	60
Soc. & Phil. Studies	93	85	38	5	221	...	...	..	...	...	...	...	..	...	...	...	...	..	..	...	221
Anthropology	...	...	..	...	...	7	3	1	...	11	2	5	..	1	8	1	1	..	..	2	21
Mod. Hist.	...	...	..	...	...	9	20	16	1	46	13	13	10	4	40	16	33	10	2	61	147
Music	2	3	..	2	7	1	2	..	1	4	1	3	..	1	5	2	7	..	..	9	25
Philosophy	5	2	4	13	24	2	2	2	...	6	2	1	2	...	5	3	9	1	..	13	48
Phil. (Eng. or Hist. option)	...	...	..	...	...	6	12	8	6	32	8	7	6	3	24	7	8	3	1	19	75
Pol. Sc. & Econ.	...	...	..	...	...	17	9	8	4	38	15	16	7	1	39	29	17	8	6	60	137
Psychology	...	...	..	...	...	13	7	1	...	21	8	16	3	2	29	26	12	3	..	41	91
Sociology	...	...	..	...	...	13	9	4	...	26	10	4	1	...	15	12	6	1	1	20	61
Math. Phys. Chem.	39	25	9	7	80	...	...	..	...	...	...	...	..	...	...	...	...	..	..	...	80
Math. & Phys.	...	...	..	...	...	12	14	..	2	28						...	...	..	..	...	28
Math. & Phys., Div. I	...	...	..	...	...	...	...	..	...	...	9	5	2	1	17	3	...	..	..	3	20
Math. & Phys., Div. II	...	...	..	...	...	...	...	..	...	...						3	1	1	..	5	5
Math. & Phys., Div. III	...	...	..	...	...	...	...	..	...	...						8	3	..	..	11	27
Math. & Phys., Div. IV	...	...	..	...	...	...	...	..	...	...	10	4	..	2	16	1	...	..	..	1	1
Math. & Phys., Div. V	...	...	..	...	...	...	...	..	...	...	5	2	..	...	7	5	4	..	..	9	16
Physics & Chemistry	...	...	..	...	...	7	1	1	...	9	5	7	..	...	12	3	1	1	..	5	26
Physics & Geology	...	...	..	...	...	3	...	..	...	3	1	1	..	...	2	...	6	2	2	10	15
Chemistry	...	...	..	...	...	1	3	1	2	7	2	1	..	2	5	8	3	..	1	12	24
Science	41	22	5	3	71	...	...	..	...	...	...	...	..	...	...	...	...	..	..	...	71
Biology	...	...	..	...	...	4	2	2	...	8	6	9	..	...	15	6	6	1	..	13	36
Food Chemistry	...	...	..	...	...	...	3	2	...	5	4	3	2	2	11	1	2	..	..	3	19
Geography	...	...	..	...	...	1	6	1	...	8	7	4	3	...	14	4	7	..	..	11	33
Geological Science	...	...	..	...	...	2	1	..	1	4	...	2	..	...	2	1	5	1	..	7	13
Household Economics	13	26	3	1	43	15	27	5	2	49	9	16	3	...	28	20	20	2	2	44	164
Physiol. & Biochem.	...	...	..	...	...	11	2	1	...	14	23	9	2	...	34	15	5	..	..	20	68
Commerce & Finance	40	56	10	8	114	22	48	18	8	96	31	39	7	4	81	30	32	4	13	79	370
Totals	516	457	143	172	1,288	457	456	171	214	1,298	558	535	150	182	1,425	319	300	70	43	732	4,743

VII. REGISTRATION IN COURSES IN THE SCHOOL OF GRADUATE STUDIES

Department	Ph.D.	M.A.	M.Com.	M.S.	M.A.Sc.	Mech. E.	Met. E.	D.Paed.	M.Sc.F.	Mus. Doc.	M.Sc.(Dent.)	LL.M.	D. Jur.	M.S.A.	D.V. Sc.	M.S.W.	Grad. Studies
Aeronautical Engineering	7	..	..	..	14	..	..	..	..	..	..	..	..	..	..	..	..
Anatomy	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Anthropology	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Applied Mathematics	8	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Art and Archaeology	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Astronomy	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Biochemistry	10	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
Botany	20	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
Business Administration	..	..	61	..	..	..	..	..	..	..	..	..	..	..	..	..	10
Chemical Engineering	3	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	2
Chemistry	19	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chemistry (Hygiene)	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
East Asiatic Studies	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Civil Engineering	..	..	..	..	21	..	..	..	..	..	..	..	..	..	..	..	..
Classics	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Dentistry	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..
Educational Theory	5	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
Electrical Engineering	2	..	..	..	15	..	..	..	..	..	..	..	..	..	..	..	29
Engineering Physics	1	..	..	..	9	..	..	..	..	..	..	..	..	..	..	..	4
English	29	55	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36
Food Chemistry	1	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Forestry	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..
Geography	..	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Geological Sciences	25	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
Germanic Languages	6	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
History	10	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
Household Science	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hygiene and Preventive Medicine	1	5	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Law	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..
Mathematics	14	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
Mechanical Engineering	2	..	..	..	21	..	..	..	..	..	..	..	..	..	..	..	3
Metallurgical Engineering	7	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..
Mining Geology	..	..	..	..	14	..	..	..	..	..	..	..	..	..	..	..	..
Music	..	..	..	..	..	..	..	..	..	10	..	..	..	..	..	..	..
Pathological Chemistry	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Pedagogy	..	..	..	..	..	..	..	24	..	..	..	..	..	..	..	..	..
Pharmacology	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Philosophy	26	61	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
Physics	33	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
Physiological Hygiene	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Physiology	15	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Political Science and Economics	25	80	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
Professional Degrees	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Psychology	11	117	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
Public Health Nutrition	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Romance Languages	7	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
Semitic Languages	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Social Work	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	9
Surgery	..	..	..	34	..	..	..	..	..	..	..	..	..	..	..	..	..
Veterinary Science	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Zoology	26	20	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Special committees	17	..	..	..	..	..	..	..	..	..	..	..	..	37	..	..	..
Totals	333	592	61	34	110	1	1	24	2	10	4	2	3	41	2	48	319

VIII. RESULTS OF ANNUAL EXAMINATIONS

Faculty of Arts

First Year

Course	Passed	Conditioned	Transferred	Failed	Totals
Pass	330	127	..	79	536
Classics	7	...	..	..	7
East Asiatic Stud	...	1	..	..	1
Eng. Lang. & Lit.	36	4	..	3	43
Lat. & Eng.	3	...	..	..	3
Lat. (Fr. or Gk. option)	4	...	..	1	5
Mod. Hist. & Mod. Lang.	15	...	2	..	17
Mod. Lang. & Lit.	39	2	4	1	46
Or. Lang.	1	...	..	..	1
Art & Arch.	13	...	6	..	19
Soc. & Phil.	158	19	29	10	216
Music	5	1	..	1	7
Phil. (Eng. or Hist.)	19	3	1	1	24
Math. Phys. Chem.	39	6	10	17	72
Science	40	8	5	11	64
Household Econ.	31	3	8	..	42
Com. & Fin.	66	4	21	16	107
Totals	806	178	86	140	1,210

Second Year

Course	Passed	Conditioned	Transferred	Failed	Totals
Pass	466	149	..	62	677
Classics	5	...	..	..	5
Eng. Lang. & Lit.	39	...	3	1	43
Gk. & Heb.	...	...	1	..	1
Heb. (Phil. or Gk. & Rom. Hist. option)	1	...	..	..	1
Lat. & Eng.	1	...	..	..	1
Mod. Hist. & Mod. Lang.	16	1	..	..	17
Mod. Lang. & Lit.	47	1	3	..	51
Or. Lang.	...	...	1	..	1
Art & Arch.	16	...	..	..	16
Law	12	...	9	14	35
Mod. Hist.	42	2	2	..	46
Music	3	...	1	..	4
Phil.	7	...	..	..	7
Phil. (Eng. or Hist.)	27	5	..	..	32
Anthrop.	9	...	2	..	11
Pol. Sc. & Econ.	24	6	7	1	38
Psych.	18	...	3	..	21
Sociol.	22	2	2	..	26
Math. & Phys.	25	1	2	1	29
Phys. & Chem.	7	1	1	1	10
Phys. & Geol.	2	...	1	..	3
Chem.	5	...	2	..	7
Biol.	6	...	1	..	7
Food Chem.	3	...	2	..	5
Geog.	6	2	..	..	8
Geol. Sc.	2	1	1	..	4
Household Econ.	34	6	7	2	49
Physiol. & Biochem.	8	1	3	2	14
Com. & Fin.	63	9	20	3	95
Totals	916	187	74	87	1,264

Third Year

Course	Passed	Conditioned	Transferred	Failed	Totals
Pass	648	122	..	20	790
General	59	1	..	9	69
Classics	4	...	1	..	5
Eng. Lang. & Lit.	47	3	1	..	51
Heb. (Phil. or Gk. & Rom. Hist. option)	2	...	..	..	2
Lat. and Eng.	...	1	..	..	1
Lat. (Fr. or Gk. option) Div. I	3	...	..	..	3
Lat. (Fr. or Gk. option) Div. II	1	...	..	..	1
Mod. Hist. & Mod. Lang.	13	...	..	..	13
Mod. Lang. & Lit.	45	2	..	2	49
Or. Lang.	2	1	..	..	3
Art & Arch.	10	1	..	..	11
Law	1	...	..	..	1
Mod. Hist.	38	2	..	..	40
Music	5	...	..	..	5
Phil.	5	...	..	..	5
Phil. (Eng. or Hist.)	20	4	..	..	24
Anthrop.	7	...	..	..	7
Pol. Sc. & Econ.	30	6	1	1	38
Psych.	28	...	1	..	29
Sociol.	15	...	..	..	15
Math. & Phys. (Div. I & II)	10	1	1	4	16
Math. & Phys. (Div. III & IV)	12	...	1	3	16
Math. & Phys. (Div. V)	6	...	1	..	7
Phys. & Chem.	4	4	2	2	12
Phys. & Geol.	1	1	..	..	2
Chem.	2	...	3	..	5
Biol.	10	...	5	..	15
Food Chem.	6	2	3	..	11
Geog.	7	7	..	..	14
Geol. Sc.	2	...	..	..	2
Household Econ.	24	2	2	..	28
Physiol. & Biochem.	13	9	7	4	33
Com. & Fin.	57	12	7	5	81
Totals	1,137	181	36	50	1,404

Fourth Year

Course	Passed	Conditioned	Transferred	Failed	Totals
General	101	1	..	7	109
Classics	5	..	..	..	5
Eng. Lang. & Lit.	46	1	..	..	47
Lat. (Fr. or Gk. option) Div. I	5	..	..	..	5
Mod. Hist. & Mod. Lang.	17	..	..	..	17
Mod. Lang. & Lit.	38	1	..	..	39
Or. Lang.	1	..	..	..	1
Art & Arch.	26	..	..	..	26
Law	21	..	..	2	23
Mod. Hist.	61	..	..	..	61
Music	9	..	..	..	9
Phil.	13	..	..	..	13
Phil. (Eng. or Hist.)	17	1	..	..	18
Anthrop.	2	..	..	..	2
Pol. Sc. & Econ.	60	..	..	..	60
Psych.	41	..	..	..	41
Sociol.	19	..	..	..	19
Math. & Phys. (Div. I)	3	..	..	..	3
Math. & Phys. (Div. II)	5	..	..	..	5
Math. & Phys. (Div. III)	11	..	..	..	11
Math. & Phys. (Div. V)	8	..	..	1	9
Phys. & Chem.	5	..	..	..	5
Phys. & Geol.	10	..	..	..	10
Chem.	12	..	..	..	12
Biol.	13	..	..	..	13
Food Chem.	3	..	..	..	3
Geog.	10	..	..	..	10
Geol. Sc. (Div. I)	7	..	..	..	7
Household Econ.	44	..	..	..	44
Physiol. & Biochem.	16	2	..	2	20
Com. & Fin.	77	2	..	..	79
Totals	706	8	..	12	726

Pass Course for Teachers

	Passed	Conditioned	Tota
August examination	281	46	327
May examination	407	81	488
Totals	688	127	815

Faculty of Medicine

	Passed	Conditioned	Failed
First premedical year	115	22	10
Second premedical year	110	32	2
First medical year	142	13	6
Second medical year	151	16	2
Third medical year	157	16	1
Fourth medical year	156	4	..
Degree of Bachelor of Science (Medicine)	9	..	..
Diploma in Art as Applied to Medicine	5	2	1
Diploma in Industrial Hygiene	1	..	..
Diploma in Public Health	26	..	..
Diploma in Radiology	2	1	..
Totals	874	106	22

Faculty of Applied Science and Engineering

	Passed with Honours	Passed	Conditioned	Failed
First year				
Civil Engineering	16	22	10	17
Mining Engineering	..	2	3	2
Mechanical Engineering	11	22	19	14
Engineering Physics	8	7	8	2
Chemical Engineering	14	24	21	30
Electrical Engineering	18	20	18	21
Metallurgical Engineering	..	..	1	3
Ceramic Engineering	..	2	..	1
Mining Geology	4	3	6	4
Aeronautical Engineering	2	2	5	2
Engineering and Business	8	12	16	11
	81	116	107	107
Second year				
Civil Engineering	19	37	28	21
Mining Engineering	..	3	9	..
Mechanical Engineering	18	29	38	27
Engineering Physics	10	10	11	4
Chemical Engineering	13	24	31	12
Electrical Engineering	13	23	27	19
Metallurgical Engineering	4	6	7	3
Ceramic Engineering	1	1	3	..
Mining Geology	1	4	4	2
Aeronautical Engineering	1	1	6	1
Engineering and Business	5	16	25	7
	85	154	189	96
Third year				
Civil Engineering	18	46	55	18
Mining Engineering	4	8	9	..
Mechanical Engineering	24	79	64	30
Engineering Physics	11	13	13	8
Chemical Engineering	17	37	35	12
Electrical Engineering	26	65	42	19
Metallurgical Engineering	3	10	5	..
Ceramic Engineering	1	3	5	1
Mining Geology	1	5	14	1
Aeronautical Engineering	12	10	10	4
Engineering and Business	6	34	19	13
	123	310	271	106
Fourth year				
Civil Engineering	43	104	4	..
Mining Engineering	10	20	2	..
Mechanical Engineering	53	186	4	..
Engineering Physics	24	29	15	4
Chemical Engineering	34	119	4	..
Electrical Engineering	50	116	19	4
Metallurgical Engineering	16	21	1	..
Ceramic Engineering	2	6	..	..
Mining Geology	7	23	..	..
Aeronautical Engineering	13	38	1	..
Engineering and Business	12	71	..	..
	264	733	50	8
Totals	553	1,313	617	317

Faculty of Household Science

	Passed	Conditioned	Failed
First year	2	1	1
Second year	4	1	2
Third year	3	..	..
Fourth year	1	..	..
Totals	10	2	3

Ontario College of Education

	Passed	Conditioned	Failed
Teachers' courses			
Intramural students	390	4	5
Extramural students	62	11	2
Librarians' courses			
Degree of Bachelor of Library Science			
Intramural students	60	..	..
Extramural students	4	..	..
Degree of Bachelor of Pedagogy			
Intramural students			
Awarded degree	46	..	..
Passed in part	142	..	9
Extramural students			
Awarded degree	12	..	..
Passed in part	24	..	10
Totals	740	15	26

Faculty of Forestry

	Passed	Conditioned	Failed
First year	25	11	2
Second year	34	14	6
Third year	44	17	3
Fourth year	89	..	..
Totals	192	42	11

Faculty of Music

	Passed	Conditioned	Failed
General Music			
First year	2	..	..
Second year	8	4	1
Third year	1	7	3
School Music			
First year	11	9	5
Second year	8	15	5
Third year	13	8	..
Totals	43	43	14

Faculty of Dentistry

	Passed	Conditioned	Failed
Predental year	38	4	18
First year	60	10	6
Second year	59	19	2
Third year	122	29	1
Fourth year	169	1	..
Diploma in Dental Nursing	21	4	..
Diploma in Dental Public Health	5	1	..
Totals	474	68	27

School of Law

	Passed	Conditioned	Failed
First year	15	6	15
Second year	6	4	1
Fifth year			
Full time	11	1	..
Part time	24	1	..
Totals	56	12	16

School of Architecture

	Passed	Conditioned	Failed
First year	22	12	2
Second year	24	18	9
Third year	24	13	5
Fourth year	33	18	..
Fifth year	43	11	..
Totals	146	72	16

School of Physical and Health Education

	Passed	Conditioned	Failed
First year	37	19	14
Second year	33	6	2
Third year	78	1	..
Totals	148	26	16

School of Social Work

	Passed	Conditioned	Incomplete	Failed
Candidates for the Degree of Bachelor of Social Work:				
Full-time students	75	2	4	1
Part-time students	6	..	1	..
Candidates for the Degree of Master of Social Work:				
*Full-time students	36	3	1	1
†Part-time students	15	..	..	..
Special students:				
Full-time students	1	2	..	..
Part-time students	33	1	..	10
Totals	166	8	6	12

*These students were registered in the School of Graduate Studies; they did not complete their year's work until the end of the summer term, August, 1950.

†These students were registered in the School of Graduate Studies; two of them completed their work and received the Master of Social Work degree at the June Convocation, 1950.

At the Fall convocation, 1949, sixteen students who were not registered in the School in the academic year 1949-50 were awarded Master of Social Work degrees in respect of work which had been completed during the academic year 1948-9 and the summer term, 1949.

School of Nursing

	Passed	Conditioned	Failed
Degree of Bachelor of Science in Nursing			
First year	14	6	..
Second year	14	2	2
Third year	15	..	..
Fourth year	15	4	..
Supplementary year	3	..	..
Graduate certificate courses			
Clinical Supervision	41	1	..
Nursing Education and Nursing Administration: General	31	..	..
Nursing Education and Nursing Administration: Advanced	1	..	..
Public Health Nursing: General	86	3	2
Public Health Nursing: Advanced	18	1	..
Occasional students	30	1	..
Totals	268	18	4

School of Hygiene

	Passed	Conditioned	Failed
Diploma in Hospital Administration	16	7	..
Diploma in Veterinary Public Health	12	..	..
Certificate in Public Health	2	1	..
Totals	30	8	..

Institute of Child Study

	Passed	Conditioned	Failed
Diploma in Child Study	23	..	..
Total	23	..	..

Department of University Extension

	Passed	Conditioned	Failed
Diploma in Occupational Therapy			
First year	35	14	..
Second year	30	2	..
Third year	55	..	..
Diploma in Physical Therapy			
First year	11	7	4
Second year	12	2	..
Third year	21	..	..
Teacher's Certificate in Physical Therapy			
Second year	1	..	..
Certificate in Business (evening)	90	8	2
Certificate in Institutional Management			
First year	49	32	5
Second year	46	9	..
Totals	350	74	11

The numbers examined in other departments of the University were as follows:

Ontario College of Pharmacy	319
Ontario Agricultural College	206
Ontario Veterinary College	127
Local examinations in Music	28,800

IX. ADMISSION TO DEGREES

	Men	Women	Total
LL.D. (Honorary)	6	...	6
Ph.D.	83	3	86
M.A.	252	61	313
M.Com.	10	...	10
M.S.	...	...	...
M.A.Sc.	67	1	68
C.E.	...	...	...
D.Paed.	3	...	3
M.Sc.F.	1	...	1
Mus.Doc.	2	...	2
M.Sc. (Dent.)	1	...	1
D.Jur.	2	...	2
M.S.A.	8	2	10
D.V.Sc.	1	...	1
M.S.W.	10	8	18
B.A.	904	585	1,489
B.Com.	80	1	81
M.D.	179	7	186
B.Sc. (Med.)	7	...	7
B.A.Sc.	1,149	2	1,151
B.Arch.	41	2	43
B.H.Sc.	...	4	4
B.Paed.	50	8	58
B.L.S.	14	51	65
B.Sc.F.	92	...	92
Mus.Bac.	14	5	19
D.D.S.	168	3	171
B.Sc. (Dent.)	4	...	4
LL.B.	36	3	39
B.P.H.E.	41	38	79
B.S.W.	42	42	84
B.Sc.N.	...	4	4
Phm.B.	101	29	130
B.S.A.	210	...	210
D.V.M.	132	3	135
Totals	3,710	862	4,572

X. ADMISSION TO DIPLOMAS AND CERTIFICATES

	Men	Women	Total
Business	6	1	7
Child Study	...	23	23
Clinical Supervision	...	42	42
Dental Nursing	...	23	23
Dental Public Health	5	...	5
Hospital Administration	11	...	11
Industrial Hygiene	1	...	1
Institutional Management	45	13	58
Nursing	...	151	151
Occupational Therapy	...	56	56
Orthodontics	4	...	4
Periodontology	...	1	1
Physical Therapy	...	24	24
Psychiatry	8	2	10
Public Health	27	1	28
Radiology	1	...	1
Veterinary Public Health	12	...	12
Totals	120	337	457

XI. GEOGRAPHICAL DISTRIBUTION OF STUDENTS

Faculty of Arts

	University of Toronto	University College	Victoria College	Trinity College	St. Michael's College	Totals
Alberta	19	16	6	3	9	53
British Columbia	26	6	5	4	6	47
Manitoba	11	9	4	1	2	27
New Brunswick	5	1	....	1	...	7
Newfoundland	...	...	....	...	2	2
Nova Scotia	10	5	6	3	...	24
Ontario: (1)Province	508	653	614	172	214	2,161
(2)Toronto	623	1,126	1,082	321	298	3,450
Prince Edward Island	1	....	2	...	...	3
Quebec	3	8	6	5	5	27
Saskatchewan	22	9	11	2	6	50
United States	4	13	10	8	68	103
Elsewhere	6	31	18	23	6	84
Totals	1,238	1,877	1,764	543	616	6,038

The University

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	School of Law	School of Architecture	School of Physical and Health Education	School of Social Work	School of Nursing	School of Hygiene	Institute of Child Study	Department of University Extension	TOTALS
Alberta	53	7	25	1	6	...	5	45	7	..	1	...	7	7	..	..	6	170
British Columbia	47	44	11	..	12	...	4	62	25	..	2	1	4	2	2	2	12	230
Manitoba	27	2	20	..	9	2	..	40	26	..	...	5	5	4	2	1	2	145
New Brunswick	7	6	4	..	7	...	1	25	2	..	...	1	1	3	..	..	...	57
Newfoundland	2	1	1	..	2	...	..	2	...	..	...	...	...	...	..	..	...	8
Nova Scotia	24	3	10	..	17	1	1	36	3	..	2	2	1	13	..	..	1	114
Ontario:																		
(1) Outside Toronto	2,161	361	1,245	4	373	126	34	472	241	19	78	67	54	147	10	6	129	5,527
(2) Toronto	3,450	646	1,450	9	253	117	52	686	229	67	147	117	117	80	11	12	311	7,754
Prince Edward Island	3	2	1	..	1	...	..	3	1	..	...	...	...	5	..	..	...	16
Quebec	27	2	24	..	10	1	6	41	3	..	...	...	5	5	4	..	5	133
Saskatchewan	50	25	15	..	14	...	3	35	35	1	1	1	4	11	4	..	11	210
United States	103	9	16	1	4	1	3	73	...	..	1	...	2	...	4	..	2	219
Elsewhere	84	34	82	..	6	3	..	67	4	1	2	1	5	19	1	3	5	317
Totals	6,038	1,142	2,904	15	714	251	109	1,587	576	88	234	195	205*	296	38	24	484	14,900

*This figure includes 60 students who were also registered in the School of Graduate Studies.

The Province of Ontario

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	School of Law	School of Architecture	School of Physical and Health Education	School of Social Work	School of Nursing	School of Hygiene	Institute of Child Study	Department of University Extension	TOTALS
Algoma	39	7	16	..	4	4	..	6	2	..	1	..	..	1	..	..	4	84
Brant	51	7	19	..	10	1	1	11	3	..	..	2	1	5	..	..	2	113
Bruce	33	6	8	1	5	1	..	7	1	..	..	..	..	1	..	..	1	64
Carleton	99	11	35	..	26	3	2	52	8	1	5	3	9	14	1	1	4	274
Cochrane	35	10	34	..	6	5	1	..	7	..	..	2	2	4	..	..	6	112
Dufferin	14	4	5	..	2	..	..	2	4	..	..	2	..	1	..	..	..	34
Dundas	1	..	1	..	3	..	..	1	..	..	..	..	..	..	..	..	..	6
Durham	38	7	8	..	4	2	3	9	2	1	1	2	..	..	..	..	..	77
Elgin	16	2	8	..	4	2	1	6	5	..	..	1	..	..	..	..	..	45
Essex	81	22	61	..	26	4	2	17	28	2	8	1	1	2	..	..	2	257
Frontenac	11	2	3	..	7	..	2	6	6	1	1	..	2	4	..	..	1	46
Glengarry	1	1	..	..	3	..	..	1	..	..	..	..	..	1	..	..	..	7
Grenville	4	..	4	..	3	..	..	1	1	..	..	..	..	..	..	..	2	15
Grey	69	4	15	..	8	1	1	3	5	1	..	..	..	3	..	..	..	110
Haldimand	13	3	7	..	4	..	..	4	2	..	..	..	..	3	..	..	1	37
Haliburton	2	..	5	..	1	3	..	..	1	..	..	..	..	..	..	..	1	13
Halton	50	5	29	..	6	6	1	5	2	1	5	2	..	5	1	..	6	124
Hastings	37	9	12	..	11	..	..	7	4	..	2	..	2	3	..	..	1	88
Huron	24	2	15	1	4	..	..	6	4	..	1	1	1	1	..	..	1	61
Kenora	7	3	14	..	1	6	1	2	1	..	1	..	..	2	..	..	1	39
Kent	23	1	28	..	7	..	1	8	2	..	1	..	1	3	..	..	..	75
Lambton	27	5	25	..	10	..	..	5	7	..	2	..	1	4	..	..	2	88
Lanark	18	2	4	..	3	1	..	22	..	..	..	1	..	3	..	..	1	55
Leeds	14	2	6	..	6	..	..	2	2	..	..	..	..	1	..	..	4	37
Lennox and Addington	6	..	..	..	..	..	..	1	..	..	1	..	..	2	..	..	..	10
Lincoln	75	13	62	..	5	2	..	6	6	..	5	3	1	2	..	1	5	186
Manitoulin	5	..	..	..	1	..	..	1	..	..	..	..	..	2	..	..	..	9
Middlesex	34	1	31	..	11	2	..	18	6	..	5	..	5	1	..	..	..	114

The Province of Ontario—*Continued*

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	School of Law	School of Architecture	School of Physical and Health Education	School of Social Work	School of Nursing	School of Hygiene	Institute of Child Study	Department of University Extension	TOTALS
Muskoka	28	8	13	..	1	3	..	3	3	1	1	..	1	1	..	..	1	64
Nipissing	68	12	22	..	8	2	.	5	4	1	1	1	..	1	..	..	3	128
Norfolk	18	1	10	..	2	1	1	.	3	..	..	1	1	1	..	1	2	42
Northumberland	26	5	7	..	3	3	.	6	..	..	..	..	2	3	..	..	2	57
Ontario	73	17	102	..	6	2	1	18	39	..	3	5	..	2	1	..	5	274
Oxford	29	4	29	..	2	6	..	6	4	..	1	2	..	4	..	..	3	90
Parry Sound	20	3	5	..	2	4	..	1	..	..	..	1	..	1	..	..	1	38
Peel	76	11	34	..	5	1	3	11	6	..	2	8	..	1	..	..	5	163
Perth	24	2	24	..	7	2	1	5	3	..	1	1	..	5	..	..	..	75
Peterborough	45	10	18	..	2	2	..	4	7	..	3	1	2	2	1	..	3	100
Prescott	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Prince Edward	4	1	2	..	2	1	.	1	1	..	..	1	..	..	..	..	..	13
Rainy River	3	2	.	.	2	..	..	2	..	..	..	..	..	..	..	..	1	10
Renfrew	22	5	8	..	5	3	..	3	2	..	..	2	2	1	..	..	1	54
Russell	1	2	1	..	3	..	..	3	..	..	..	..	..	..	..	..	..	10
Simcoe	100	16	34	..	7	7	1	10	3	3	1	2	1	8	1	..	6	200
Stormont	9	1	5	..	3	1	..	1	1	..	..	..	..	..	..	..	1	22
Sudbury	7	..	17	..	2	4	..	5	..	1	1	..	..	1	..	..	1	39
Thunder Bay	52	3	40	..	11	10	..	7	..	..	..	2	..	2	..	..	..	127
Timiskaming	54	2	22	..	8	2	1	7	..	..	2	..	..	2	..	1	2	103
Victoria	30	4	10	..	3	1	1	12	3	1	.	2	..	2	..	..	1	70
Waterloo	68	13	41	..	10	3	3	26	8	..	1	..	5	8	1	.	5	192
Welland	84	23	48	..	20	4	1	15	12	..	4	6	..	5	..	..	4	226
Wellington	60	9	20	..	17	2	..	26	6	1	1	2	..	3	2	..	2	151
Wentworth	112	25	96	2	37	6	3	35	15	3	7	1	7	11	1	.	13	374
York	318	53	182	..	24	13	2	51	12	1	10	9	7	15	1	2	22	722
Totals	2,161	361	1,245	4	373	126	34	472	241	19	78	67	54	147	10	6	129	5,527

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